DRAFT FINAL REPORT 1983 FIELD SEASON
SUB-TASK 7.06 CULTURAL RESOURCES INVESTIGATION
FOR THE SUSITNA HYDROELECTRIC PROJECT

CULTURAL RESOURCE SURVEY
IN THE MIDDLE SUSITNA RIVER VALLEY

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December 1983

ACKNOWLEDGEMENTS

The success of the 1983 field season, laboratory analysis and the resulting report is directly attributable to the archeological personnel associated with the project: Paul Buck, Martha Case, Joan Dale, Tom Dilley, Tom Gillispie, Polly Haessig, Claudia Hemphill, Anne Jensen, Chuck Hoffman, Beth Horvath, Bill Johnson, Maureen King, Stefanie Ludwig, Howard Maxwell, Jeanne Nijhowne, Herb Maschner, Owen Mason, Nena Powell, Bruce Ream, Bob Sattler, Steven Shelley, Dixon Sims and Allison Young. A note of thanks to Jay Romick and Tom Dilley for the tephra analysis and Dr. David Murray for identifying floral specimens. We would like to thank the staff at the Watana Base Camp for the excellent job they did. Through their efforts, in particular Jack Matthewman, the Watana Base Camp was a home away from home. A special note of thanks to Granville Couey for the excellent job of scheduling helicopter support. We would also like to express our appreciation to all the Air Logistics personnel who helped make our field season productive and safe. A special thanks to Ty Dilliplane, Tim Smith and Dr. Floyd Sharrock for their valuable input throughout the project. Secretarial support was provided by Sharon Olive and Shelley Carlson. The various drafts of the manuscript were typed by Vickie Ivester. The excellent graphics were done by Jim Jordan and Dixon Sims. Tom Gillispie drafted the systematic site report for TLM 069. To the numerous other scientists, who through their own research provided valuable information to cultural resource studies, we express our appreciation.

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December 29, 1983

National Park Service
2525 Gambell Street
Anchorage, Alaska 99503-2892

Attention: Dr. Floyd W. Sharrock
Archaeologist

Subject: Susitna Hydroelectric Project
Draft Final Report: 1983 Field Season, Subtask 7.06, Cultural Resources Investigation for the Susitna Hydroelectric Project

Dear Dr. Sharrock:

Enclosed for your review is a copy of the Draft Final Report: 1983 Field Season, Subtask 7.06, Cultural Resources Investigation for the Susitna Hydroelectric Project. In order to include your comments and meet a very demanding Federal Energy Regulatory Commission filing schedule, we must have written comments by Tuesday, January 10, 1984.

A collating error has been made in reproducting the draft report. Please note that pages 4-2 through 4-13 follow pages 3-449 and that page 4-1 has been lost. We will provide a copy of page 4-1 as soon as possible.

Thank you in advance for the courtesy of your review. If you have any questions, please feel free to call Dr. Richard Fleming, Alaska Power Authority, at 276-0001.

Sincerely,

Jon S. Ferguson
Project Manager
Susitna Hydroelectric Project

Enclosures as stated

JSF:ms

cc: N. Hernandez, Harza-Ebasco
G. Lawley, Harza-Ebasco

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1 - INTRODUCTION

This document presents the results of the reconnaissance level survey and systematic testing conducted during the 1983 field season. Results of the previous field seasons (1980, 1981, 1982) are presented in "Final Report Subtask 7.06 Cultural Resources Investigation for the Susitna Hydroelectric Project" (Dixon et al. 1982a), and Final Report 1982 Field Season Subtask 7.06 Cultural Resources Investigation for the Susitna Hydroelectric Project (Dixon et al. 1982b).

For the 1983 field season the research design and strategy developed for the overall cultural resource program was applied, a summary of which is presented in Chapter 2. Surface reconnaissance and subsurface testing was conducted in 38 survey locales and in proposed borrow areas F and the addition to C. Borrow K was observed to be steep and wet and considered of low archeological potential, therefore no on-the-ground survey was conducted. In addition 13 survey locales received additional testing based on an evaluation of survey locale forms completed between 1980 and 1982. Sensitivity maps depicting the archeological potential of the transmission routes, access route and railroad were also prepared. The sensitivity maps and report were submitted to Harza-Ebasco in September 1983 and are therefore not included in this document. A total of 78 sites were documented in these areas considered during the 1983 field season, bringing the total number of sites documented to date to 245. Of the sites documented during the 1983 field season 56 were located during field investigations and 22 were documented in the files of the Alaska Office of History and Archeology. In addition three sites located at the end of the 1982 field season were also recorded.

In addition to reconnaissance level survey five sites were systematically tested. Two sites tested in 1981 and one site tested in 1982 received further testing in 1983 to assist in site specific and overall program significance. Sites recorded during reconnaissance level testing during the 1983 field season, the three sites found in 1982, but recorded in 1983, the five systematically tested sites and the three sites that received additional testing are discussed in Chapter 3.

The 22 sites documented in the files of the Office of History and Archeology are considered in Chapters 4 and 5 under impact and mitigation.

A total of 26 sites have received systematic testing to date. Twenty-five of the 26 sites tested at this level appear to be eligible for inclusion in the National Register of Historic Places. Further testing is necessary to address the significance of other sites that will be adversely impacted by the Susitna Hydroelectric Project.

Preliminary impact analysis for all sites known to date is presented in Chapter 4. Based on information provided in the FERC license application including supplemental information and various project maps, the following impact areas have been addressed: Watana Reservoir, Watana Construction Area, Devil Canyon Reservoir, Devil Canyon Construction Area, Borrow Area, Access Route, Railroad, Recreation Area, Transmission Route (Healy to Fairbanks, Willow to Anchorage, Watana Dam to Intertie), Geotechnical Area, and Other Portions of the Study Area. Tables 4.1-4.5 address Direct Impact, Indirect Impact, Potential Impact and No Impact for the 245 sites presently known. Preliminary evaluation of this impact indicates that 109 sites will receive direct impact, 28 will be indirectly impacted and 133 could be potentially impacted. Based on present data it appears that 10 sites will not be impacted by the Susitna Hydroelectric Project. For the 45 sites presently in proposed borrow areas reevaluation will be necessary if the borrow area is not actually selected as a borrow source.

A preliminary mitigation plan is presented in Chapter 5. Options considered include: Avoidance, preservation and investigation, which are applied when possible, given the present level of information. Investigation is presently recommended for all sites that will be either directly or indirectly impacted by the Susitna Hydroelectric Project. Avoidance is recommended for all sites that could be potentially impacted. A monitoring program is recommended for all sites in the potential category to assess project impact on these sites during construction. If, during monitoring, an adverse impact is identified, then it will be necessary to assess the impact and develop the appropriate mitigation measures to avoid or lessen the impact.

Because not all surveyable portions of the study area have been examined, continued archeological investigation is necessary in order to complete the cultural resource inventory. In addition, continued systematic testing is required to evaluate site significance and eligibility to the National Register of Historic Places.

Chapter 6 is a current bibliography for the cultural resource studies. The Appendix includes maps of site locations and survey locales. Due to the sensitive nature of this information, distribution of the Appendix is limited.

2 - METHODOLOGY

2.1 - Archeology and History

(a) Research Design and Strategy

For 1983 field studies the research design and strategy developed for the overall cultural resource program was applied, a summary of which is provided here. The research design integrates the current archeological, historical, ethnological, and geological data into a cultural chronological framework and developes a research strategy that is structured to predict site occurrence in relation to physical and topographic features within the limits of contemporary archeological method and theory. For a more detailed discussion of the research design and strategy see Dixon et al. (1982a), Chapter 2.

Based on the delineated cultural chronology, documented site locales for each culture period, and geoarcheologic evaluations, survey locales were identified as exhibiting potential for site occurrence. These locales are then subject to on-the-ground reconnaissance level survey aimed at locating cultural resources representing various periods of Alaskan prehistory and history. In addition to survey locales, areas subject to ground disturbing activities associated with the project are also examined.

Based on an analysis of site locational data from regions adjacent to, and within the study area, the features characteristically associated with site occurrence are overlooks (areas of higher topographic relief than much of the surrounding terrain) lake margins, stream and river margins, and natural constructions (areas where the topographic setting and surrounding terrain form natural constrictions which tend to funnel game animals using the area) (Dixon et al. 1982a).

In addition to identifying areas having archeological potential (survey locales), areas that have no or very low potential for containing cultural resources and/or are not surveyable given present testing methods were also identified. These areas include steep canyon walls, areas of standing water, and exposed gravel bars. These areas were eliminated from survey unless they were subject to specific activities associated with the hydroelectric project such as: auger holes, bore holes, seismic lines, test trenches, helicopter landing pads, or other ground disturbing activities. In these cases the area was examined using standard reconnaissance level survey techniques, when possible, as a means of documenting their low archeological potential. Survey locales will be defined until all surveyable portions of the study area have been examined.

It can easily be noted in the review of site locational data that many sites have been subject to reoccupation and share more than one of the defined physical, topographic, or ecological features characteristic of archeological site locales. It would appear that there may be a compounding effect in human utilization of a locale, if more than one of these major variables occur, thus possibly increasing the probability of its use and subsequent reuse. It is also recognized that this analysis is limited because it does not address known chronological and settlement pattern gaps in the archeological record.

A problem in the delineation of the topographic, physical and ecological features listed above is that a variety of specific settings are subsumed under these general categories. One objective of the research design is to attempt to obtain more precise data relevant to prehistoric settlement patterns and the juxtaposition of individual sites in relation to the natural environment. Survey locale forms were completed for each locale examined to assist in refining site location information. This form is presented in Appendix C of the 1982 report (Dixon et al. 1982a). Data collected during the 1980, 1981 and 1982 field season was incorporated into survey locale selection in 1983.

Detailed site specific information such as, geomorphic feature on which sites were located, topographic position and elevation, slope, exposure, view, stratigraphy, as well as details about the surrounding terrain and environment was gathered during field studies. This specific kind of information may enable an analysis of settlement patterns in relation to ecological variables and human response to changes in these variables through time. A site survey form was used on this project which outlines the specific kinds of information mentioned above (Dixon et al. 1982a, Appendix C). Similar information was also collected at locales where test pits did not yield cultural evidence to facilitate analysis of areas where sites do not occur.

The research design and strategy developed was based on a plan designed to provide feedback data throughout the project so that new data could be used to modify, refine and further develop the cultural resource investigation. A two-fold increase (25% 1980-1981 to 53%) in the number of survey locales producing sites during the 1982 and 1983 field seasons is directly attributable to the refinement of site locational data made possible by the analysis of data collected during the 1980, 1981 and 1982 field seasons.

(b) Data Collection and Field Procedures

(i) Reconnaissance Testing

To insure consistent data collection in the field and provide a systematic format for data retrieval, a Site Survey Form was used for this project (Dixon et al. 1982a, Appendix C). The form served as a basis for recording specific information on each site located during the reconnaissance level survey as well as a basis for systematic testing conducted during the 1983 field season by the 27-person field crew.

The form is organized into major categories including: site location, environment, site description and condition, photographic records and additional information such as a site map and location of test pits. Subcategories within each of these headings provide specific data on these topics.

Daily field notes were kept by each crew member. Field notebooks for reconnaissance survey recorded much of the same information found on the

Site Survey Forms, such as site location, topography, vegetation, soils, extent of site, and photographs taken. Field notebooks for systematic testing also recorded a detailed description of soils, stratification of soils, drawings of significant features or artifacts in situ, horizontal and vertical placement of artifacts and features excavated at the site, site maps, methods of excavation and collection of non-archeological samples (soil, pollen, radiocarbon). Crew leaders kept a continuous log of all areas surveyed, noting both the location of all test pits and natural exposures and the presence and absence of cultural material.

Once an archeological site was located, additional shovel tests were excavated, when possible, to the north, south, east, and west of the test pit which first documented the site. This testing was designed to assist in determining extent of the the site as well as to locate additional cultural material. In an effort to keep site disturbance to a minimum, preliminary testing at each site was limited, and the number of tests made at each site varied with the nature of the specific site. All test pits were numbered, mapped, and backfilled.

The location of all excavated and surface collected artifacts were recorded. Specimens recovered during reconnaissance level survey were bagged by arbitrary 5 cm levels, unless natural stratification was encountered. Radiometric samples collected were double wrapped in aluminum foil and placed in ziplock bags. All individual bags from each test were placed in a larger bag with site number, name, date, and location on the outside. All test pit bags were placed in a site bag with the site number and date on the outside. All site bags were organized by survey locale.

A site specific and regional map was made for each site. Site maps included horizontal and vertical datum points, site grid, all test pits made, location of surface artifacts, features (such as hearths, cabin remains, house pits), distance and direction to other sites or major land features, a scale, date, name of person drawing map, name of person recording data, and reference to pages in field notebooks on which additional information was recorded. Regional maps showed the site in relation to a larger portion of the study area including nearby rivers, lakes, topographic features, vegetation communities, and other sites in the immediate area.

Photographs were taken of each site located. The first picture at each site was an identification shot indicating site number, date, and crew. Other photographs recorded the environment around the site, features at the site, soil profiles exposed in test pits, and artifacts or features in situ before removal by excavation. Photographs are on file at the University of Alaska Museum.

Detailed soil profiles were drawn of soil deposits exposed during testing. These included a description of color, grain size and consistency. Measurements documenting depth and thickness for each unit were also recorded. Soil profiles are on file at the University of Alaska Museum.

A catalog of all specimens collected in the field during survey or excavation was prepared. Pertinent data was recorded for each specimen.

The reconnaissance level survey was directed toward on-the-ground evaluation of preselected survey locales that have been identified for the study area. Along with this evaluation an attempt was made in the field to identify areas that potentially may be eliminated from further survey, and the location of as many site locales as possible.

(ii) Systematic Testing

Prior to systematic testing, horizontal and vertical site datums were established and a topographic map prepared. To facilitate recording data, the datum was located, when possible, so that the entire site area would fall north and east of the datum point. A 12-inch spike was placed at the datum location with an aluminum tag containing site information.

A Sokkisha BT 20 transit, metric tape and metric stadia rod were used to establish a base line oriented to conform to local site topography in an effort to facilitate excavation. The northern end of this baseline was established as "Grid North"; all subsequent horizontal measurements referenced to grid north.

Placement of test squares was determined by the crew leader in charge in consultation with the project supervisor and principal investigator and was based on the results of preliminary reconnaissance testing, site topography, surface cultural and noncultural features, and additional shovel testing. Coordinates of test squares located off the initial grid system were determined by triangulation from the nearest two grid stakes. Individual test square elevations were established from the closest grid stake elevation by use of a string and line level. After completion of systematic testing, all reconnaissance level test pits, systematic test squares, and shovel test locations were recorded on the site map.

After the site was mapped and gridded systematic testing began. Frequently systematic testing was initiated adjacent to the test which produced cultural material during reconnaissance level testing. Subsequent 1 m by 1 m squares were laid out to assist in determining the spatial extent of the site and to collect information for evaluating and dating the site. Systematic testing was designed to efficiently collect enough data with which to address site significance. Weighted against this consideration was the question of how much testing is necessary to adequately address this problem. An attempt was made to excavate the minimum number of tests needed to address this problem. The average number of tests placed on a site was four. However, in a few cases, additional tests were necessary because of the low frequency, or in some cases the lack of, cultural material in the initial tests.

Excavation of 1 m by 1 m squares was conducted by natural stratigraphic levels when possible. However, in a few cases soil stratigraphy was not conducive to this method and excavation by arbitrary levels was employed. Careful attention was paid to the identification of tephras in relation to cultural remains because their relationship provided relative dating and intersite correlation. Test squares were excavated with trowels and all dirt was screened through ¼-inch screen unless the soil was too wet, in which case it was examined by hand. Artifacts were measured from the south and west walls of each test and vertical measurements were made with string and line level tied to the square datum. When possible, tephra samples and organic material for C14 dating were collected. C14 samples were wrapped in two layers of alluminum foil, placed in plastic bags, and oven dried at the University Museum's archeology lab as soon as possible.

Soil/sediment profiles for test squares that produced cultural material were drawn. Soil colors were determined using a Munsell color chart on dry samples. Composite soil/sediment profiles were also drawn summarizing soil/sediment stratigraphy at the site. Composite soil/sediment profiles are included with each individual systematic test report. All artifacts collected were cataloged and accessioned into the University of Alaska Museum. All test squares were backfilled upon completion of testing, and each site was restored as much as possible to the condition in which it was originally found.

The thickness of soil/sediment units sometimes varies greatly even between adjacent squares, as does the occasional presence or absence of specific soil units. The composite soil/sediment profile is a generalized profile. Elevation above or below datum and provenience of artifacts from individual test squares cannot be directly correlated with the composite site profiles. However, in a broad sense, associated soil/sediment units and contact between units are accurate for each site.

Three distinct tephra have been identified in the study area. These units were given regional names for purposes of field identification and nomenclature. The names given the tephra in order of increasing age are as follows: Devil (1800-2300 B.P., A.D. 150-350 B.C.), Watana (2300-3200 B.P., 350 B.C.-1250 B.C.) and Oshetna (greater than 4700 B.P., 2750 B.C. and possibly as old as 5000-7000 B.P., 3050 B.C.-5050 B.C.). These ash falls have not yet been correlated to tephra from other regions known to date to the last 7000 years. Munsell color designations were used to describe tephra color. Whenever possible color matching was done using dry samples. For a more detailed discussion of tephra see Chapter 5 (Dixon et al. 1982a) and Chapter 4 (Dixon et al. 1982b).

2.2 - Areas Examined 1983

During the 1983 field season surface reconnaissance and subsurface testing was conducted in 38 survey locales (114, 115, 117, 122, 123, 124, 128, 129, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160) while 13 survey locales received reexamination based on an analysis of survey locale forms completed during previous field seasons (8, 9, 13, 14, 15, 18, 22, 27, 35, 49, 50, 57, 80/32 (see Appendix for survey locale maps). In addition proposed borrow areas F, K and the extension of C were also examined. Sensitivity maps of the proposed transmission lines, access road and railroad, depicting the archeological potential, were also prepared. The sensitivity report was submitted in September of 1983 and is therefore not included in this document.

3 - HISTORIC AND ARCHEOLOGICAL SITES DOCUMENTED IN 1983

3.1 - Introduction

Surface reconnaissance and subsurface testing in 38 survey locales, reexamination of 13 survey locales, testing in proposed borrow area F and the addition to borrow area C (Table 3.1), and a review of the files in the Office of History and Archeology resulted in the documentation of 78 sites. Fifty-six sites were located in the field, and 22 sites were noted in the Office of History and Archeology files. In addition, three sites found at the end of the 1982 field season were also recorded, bringing the total number of sites documented to date for the Susitna Hydroelectric Project to 245. In addition to reconnaissance level testing, five sites were systematically tested. Two sites tested in 1981 and one site tested in 1982 received further testing in 1983 to assist in site specific and overall program significance.

Sites recorded during reconnaissance level testing during the 1983 field season and the three found in 1982, but recorded in 1983, are discussed in this chapter. The 22 sites documented in the files of the Office of History and Archeology (TLM 005, TLM 006, HEA 012, HEA 038, HEA 128, HEA 139, HEA 141, HEA 142, FAI 141, FAI 142, FAI 143, FAI 144, FAI 145, ANC 052, ANC 077, ANC 079, ANC 082, ANC 096, ANC 099, ANC 118, ANC 245 and TYO 014) are considered in chapters 4 and 5 under impact and mitigation. Of the 56 sites located and documented during the 1983 field season 53 are prehistoric and three are historic.

Fifty-three percent of the 1983 survey locales examined (Table 3.1) and 23% of the survey locales reexamined produced sites. Borrow area K was observed to be overly steep and wet and considered an area of low archeological potential, therefore, no surface reconnaissance or subsurface testing was undertaken.

Reconnaissance level site reports contained in this chapter are arranged in numerical order by their Alaska Heritage Resources Survey number (i.e., TLM 153, TLM 155). Sites recorded during the 1983 field season are presented in section 3.2. Sites receiving systematic testing or additional testing in 1983 are presented in section 3.3 and are also arranged numerically by AHRS number.

TABLE 3.1

SURVEY LOCALES AND BORROW AREAS EXAMINED IN 1983 - SITES FOUND

	Number of Sites	AHRS Number(s)
Survey Locale Number (See Appendix for survey locale maps)		
114	0	
115	0	
117	0	
120	0	
122	1	TLM 183
123	1	TLM 196
124	5	TLM 185, TLM 189, TLM 190, TLM 206, TLM 207
128	2	TLM 182, TLM 187
129	2	TLM 179, TLM 186
132	0	
133	1	TLM 177
134	1	TLM 171
135	0	
136	1	TLM 159
137	0	
138	2	TLM 184, TLM 215
139	0	
140	0	
141	1	TLM 198
142	1	TLM 195
143	2	TLM 218, TLM 219
144A	2	TLM 174
144B	1	TLM 169
145	0	

TABLE 3.1 (Continued)

	Number of Sites	AHRS Number(s)
146	0	
147	0	
148	0	
149	0	
150	5	TLM 170, TLM 181, TLM 191, TLM 193, TLM 197
151	2	TLM 160, TLM 164
152	1	TLM 172
153	4	TLM 165, TLM 166, TLM 167, TLM 180
154	0	
155	1	TLM 178
156	0	
157	1	TLM 204
158	0	
159	2	TLM 173
160	0	
Survey Locales Reexamined in 1983		
8	0	
9	0	
13	0	
14	0	
15	0	
18	0	
22	2	TLM 199, TLM 200
27	1	TLM 175
35	0	
49	0	

TABLE 3.1 (Continued)

	Number of Sites	AHRS Number(s)
50	0	
57	0	
80/32 (combined for 1983 investigations)	1	TLM 194
Borrow Areas		
C	3	TLM 201, TLM 211, TLM 213
F	8	TLM 176, TLM 188, TLM 202, TLM 203, TLM 209, TLM 210, TLM 212, TLM 214
K	0	

TABLE 3.2

RECONNAISSANCE LEVEL SURVEY SITES 1983*

AHRS #
TLM 153 (P)
TLM 155 (P)
TLM 159 (P)
TLM 160 (P)
TLM 164 (P)
TLM 165 (P)
TLM 166 (P)
TLM 167 (P)
TLM 168 (P)
TLM 169 (P)
TLM 170 (P)
TLM 171 (P)
TLM 172 (P)
TLM 173 (P)
TLM 174 (P)
TLM 175 (P)
TLM 176 (P)
TLM 177 (P)
TLM 178 (H)
TLM 179 (P)
TLM 180 (P)
TLM 181 (P)
TLM 182 (P)
TLM 183 (P)
TLM 184 (P)
TLM 185 (P)
TLM 186 (P)
TLM 187 (P)
TLM 188 (P)

TABLE 3.2 (Continued)

AHRS #
TLM 189 (P)
TLM 190 (P)
TLM 191 (P)
TLM 192 (P)
TLM 193 (P)
TLM 194 (P)
TLM 195 (P)
TLM 196 (P)
TLM 197 (P)
TLM 198 (P)
TLM 199 (P)
TLM 200 (P)
TLM 201 (P)
TLM 202 (P)
TLM 203 (P)
TLM 204 (H)
TLM 205 (P)
TLM 206 (P)
TLM 207 (P)
TLM 208 (P)
TLM 209 (P)
TLM 210 (P)
TLM 211 (P)
TLM 212 (H)
TLM 213 (P)
TLM 214 (P)

TABLE 3.2 (Continued)

AHRS #	
TLM 215 (P)	
TLM 218 (P)	
TLM 219 (P)	
HEA 211 (P)	
TOTAL	59

(P) = Prehistoric Site
(H) = Historic Site

*For the locations of sites by area see Table 5.1

AHRS Number TLM 164, Accession Number UA83-90

Area: Ca. 8 km Upstream From the Confluence of Tsusena Creek and Susitna River, Survey Locale 151

Area Map: Figure A.2; Survey Locale Map: Figure A.115

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 422780 Northing 6971400

Latitude 62°51'58" N., Longitude 148°31'03" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 16, NE¼SE¼NE¼

Site Map: Figure 3.5

Setting: The site is located on a long, narrow, sinuous ridge overlooking Tsusena Creek to the east. It is approximately 8 km upstream from the confluence of Tsusena Creek and the Susitna River, at an elevation of about 670 m asl (2200 feet). The ridge on which the site is situated is northeast to southwest trending and is approximately 80 m long and 3 m wide at the crest. The ridge slopes from the crest towards the creek at a very steep angle of 40 degrees. It slopes away from the creek at an angle of 20-25 degrees. The ridge is truncated and defined on its upstream and downstream ends by gullies. These gullies have steep walls and drain the east bank of Tsusena Creek. The creek is approximately 110 m west of the site. Access to the creek is difficult but possible by direct descent from the ridge crest. The site location commands a view up and down Tsusena Creek for about 2 km in either direction. The west bank of the creek, complete with three terrace levels, is easily viewed from the site. To the east and south the terrain is characterized as kame/kettle topography and the site affords a panoramic view of this setting. Vegetation on the site area has two distinct floral populations. The crest and slope facing Tsusena Creek contains a growth of reindeer moss, blueberry, Labrador tea, and spaghnum. The slope away from the creek contains thick stands of dwarf birch with an understory similar to the opposing slope. The only extensive soil exposure on the ridge crest is a very well traveled game trail.

Reconnaissance Testing: A single flake was initially discovered in a shovel test on the crest of the ridge. This shovel test was expanded into a 40 cm x 40 cm test (test pit 1) and two additional flakes were recovered. All flakes were made of argillite and were weathered. These flakes were found in the contact zone defined by the Devil/Watana tephras. Five additional shovel tests were excavated into the site area to define the spatial limits of the site and all were sterile. No artifactual material was found on the surface of the site area.

Collected Artifact Inventory:

Subsurface:

3 Argillite flakes

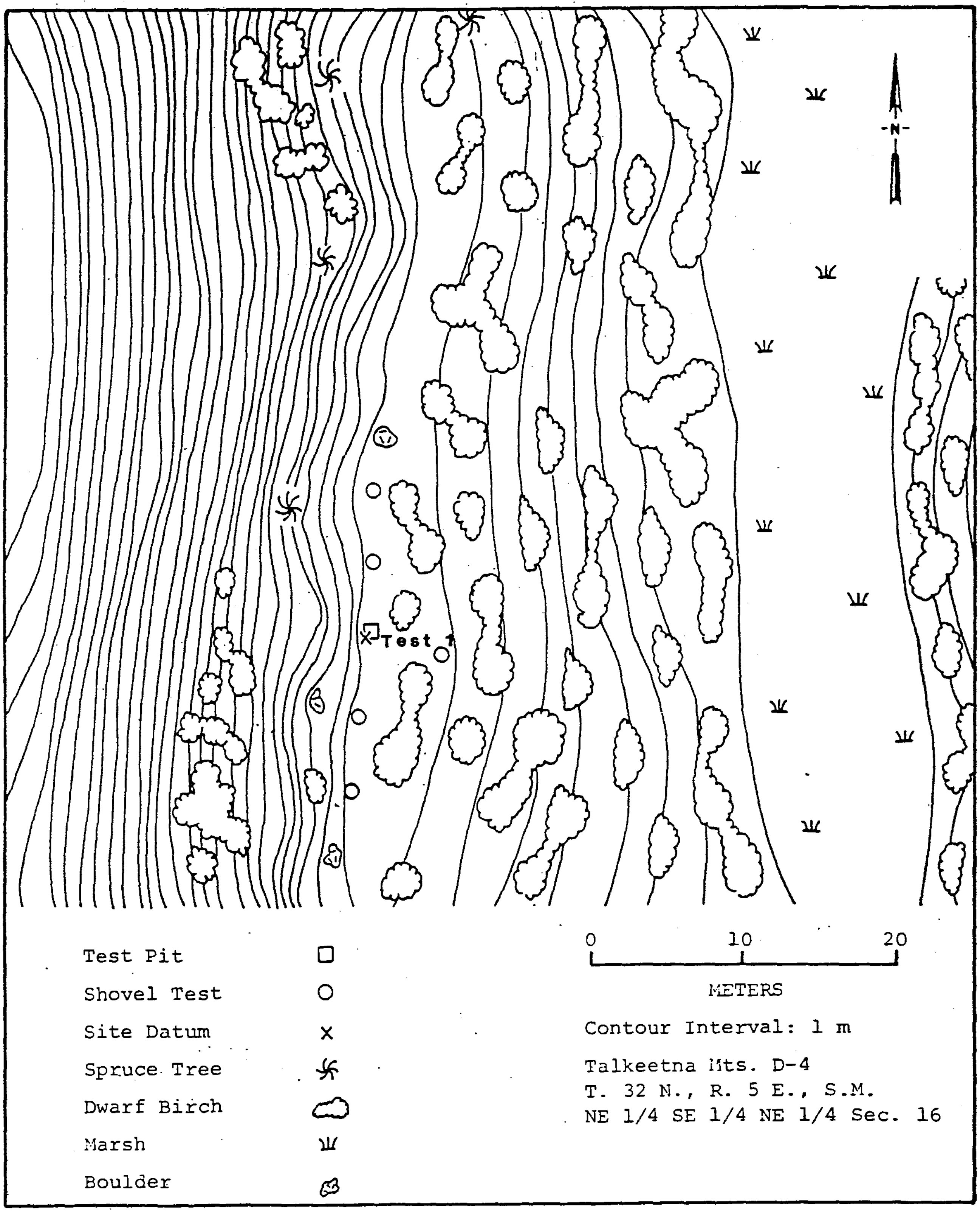


Figure 3.5. Site Map TLM 164.

AHRS Number TLM 165, Accession Number UA83-91

Area: Ca. 1.5 km Northeast of the Confluence of Tsusena Creek and Susitna River, Survey Locale 153

Area Map: Figure A.2; Survey Locale Map: Figure A.119

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420730 Northing 6967310

Latitude 62°49'45" N., Longitude 148°33'16" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 29, SE¼SW¼SE¼

Site Map: Figure 3.6

Setting: The site located on a knoll approximately 701 m asl (2300 feet) and is situated ca. 1.5 km from the confluence of Tsusena Creek and the Susitna River. The knoll is oblong in shape with its long axis oriented east to west. The knoll slopes steeply southward towards the river. No view of the river is possible from the site location. A panoramic view beginning in the west and sweeping clockwise to the east is affordable from the knoll top. A gentle northward downhill slope allows observations of the surrounding terrain for over 10 km. The vegetation for the site area is generally characterized as low shrub. Species include dwarf birch, Labrador tea, lowbush cranberry, moss, lichen, and black spruce. The floral growth in the surrounding area is composed of the same species as are present on the site and additionally, blueberry, white spruce and grasses. Areas within drainages tend to have more densely packed stands of spruce and dwarf birch.

Reconnaissance Testing: The site was initially identified with the discovery of a single basalt flake found on the surface. A 40 cm x 40 cm test pit (test pit 1) and six shovel tests were excavated to define the site size. No artifacts were recovered from subsurface testing. The single basalt flake was found lying on top of the vegetation mat. It is possible that the flake was disturbed by frost activity and/or animal activity.

Collected Artifact Inventory:

Surface:

1 Basalt flake

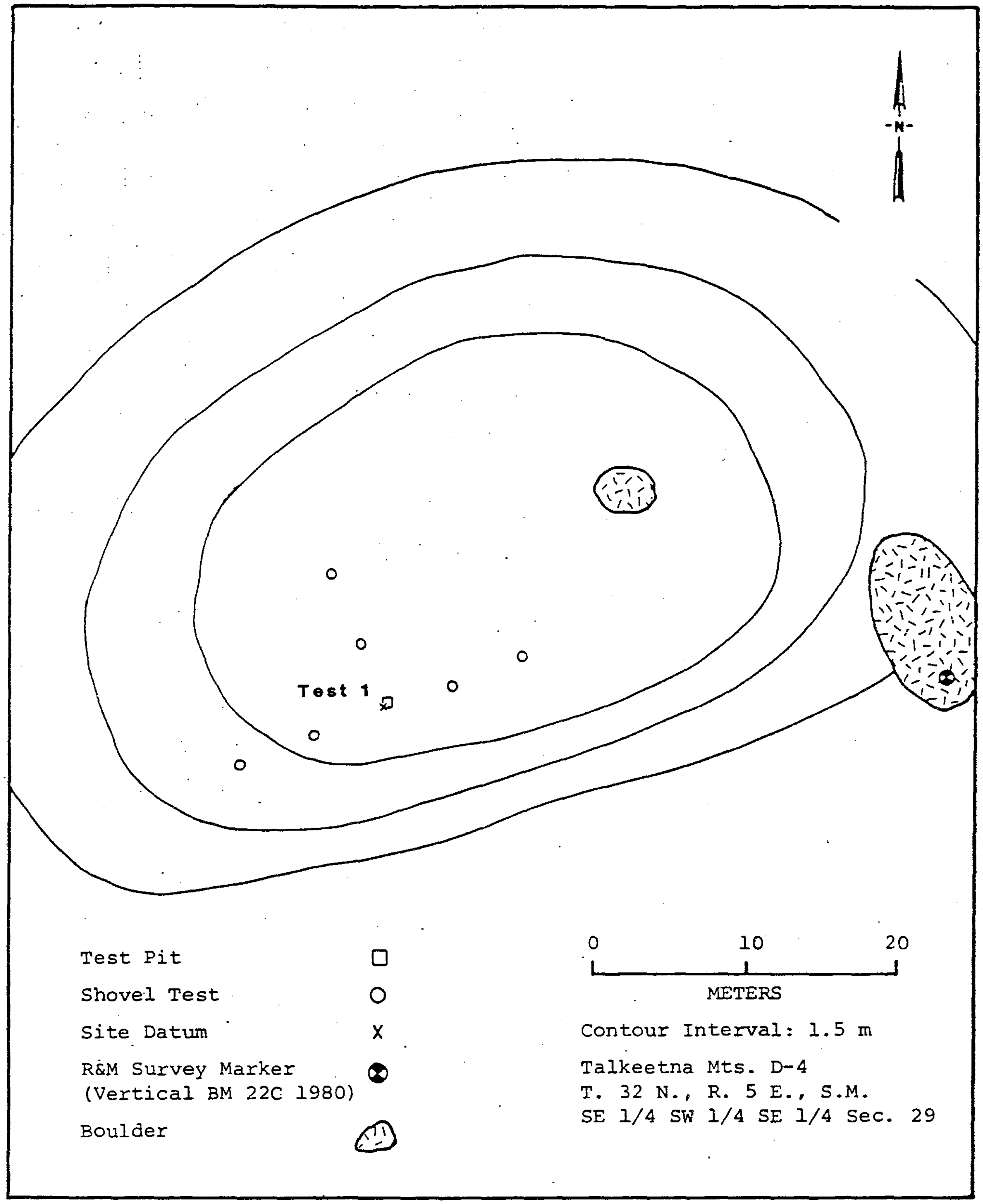


Figure 3.6. Site Map TLM 165.

AHRS Number TLM 166, Accession Number UA83-92

Area: Ca. 2.5 km Northeast of the Susitna River and Tsusena Creek confluence, Survey Locale 153

Area Map: Figure A.2; Survey Locale Map: Figure A.119

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420550 Northing 6967510

Latitude 62°49'51" N., Longitude 148°33'28" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 29, NW¼SW¼SE¼

Site Map: Figure 3.7

Setting: The site is located on the top of one of the most prominent knolls in the surrounding area at an elevation of ca. 704 m asl (2310 feet). It is approximately 2.5 km northeast of the confluence of Tsusena Creek and the Susitna River. The knoll is elongated in shape, approximately 25 m in a northwest to southeast direction and 10 m in a northeast to southwest direction. To the north and the west the knoll grades into a sloping plain. Two lakes occur approximately 1.3 km north of the site. The larger of the two lakes is about 1.5 hectares in size. To the south and to the southwest the terrain is composed of kettle lakes and kames. This rugged terrain culminates as a ridge overlooking the Susitna River, which is approximately 1 km south of the site. The soil in the site area is well drained and supports an upland tundra ecosystem. Vegetation consists primarily of lichens, bearberry, dwarf Labrador tea, blueberry, lowbush cranberry and dwarf birch. The area surrounding the site contains similar kinds of vegetation. Black and white spruce occur regularly in the low-lying areas but are infrequent at higher elevations.

Reconnaissance Testing: No artifacts were found on the surface of the site. A total of nine shovel tests were excavated at the site. One of these shovel tests was expanded into a 40 cm x 40 cm test pit (test pit 1). A single basalt flake was recovered from the shovel test excavation. No other artifacts were found from subsequent tests.

Collected Artifact Inventory:

Subsurface:

1 Basalt flake

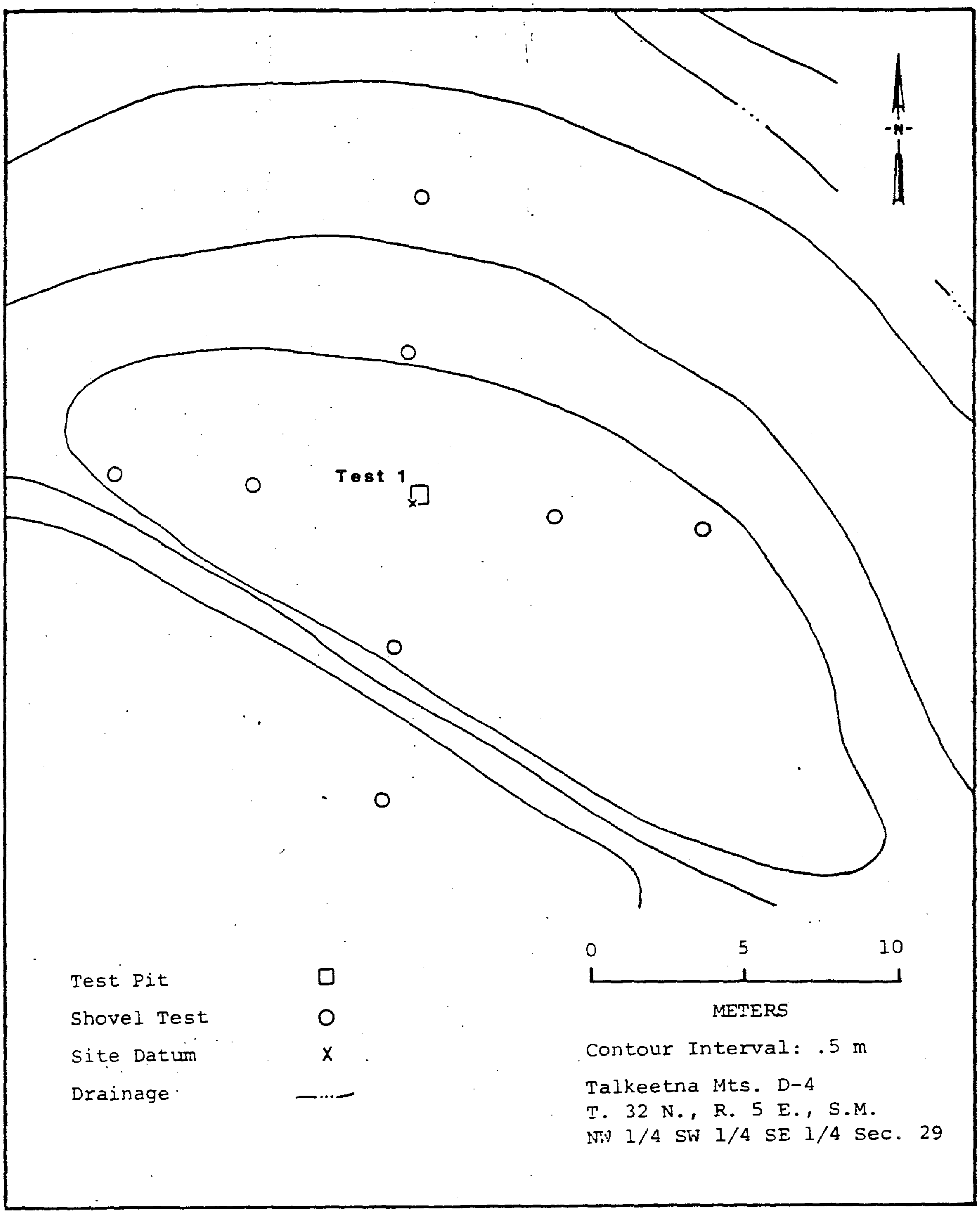


Figure 3.7. Site Map TLM 166.

AHRS Number TLM 167, Accession Number UA83-93

Area: Ca. 3.5 km East of the Susitna River and Tsusena Creek Confluence, Survey Locale 153
Area Map: Figure A.2; Survey Locale Map: Figure A.118
USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420310 Northing 6967430

Latitude 62°49'48" N., Longitude 148°33'49" W.

T. 32 N., R. 5 E., Seward Meridian
Sec. 29, NE¼SE¼SW¼

Site Map: Figure 3.8

Setting: The site is located above and to the north of the Susitna River. It is on the top of a small knoll approximately 3.5 km east of the confluence of Tsusena Creek and the Susitna River. The site elevation is ca. 694 m asl (2280 feet). The knoll on which the site lies is roughly circular in shape and measures ca. 5 m by 7 m in diameter at the top. From the site location, the view to the south and east consists of a series of small kames and kettle lakes. The Susitna River cannot be seen from the site area. To the north and west, the site overlooks low open country. A dry lake bed is within 150 m of the site. The vegetation on the site consists primarily of low shrub flora. It is covered with lichens and small amounts of Labrador tea, dwarf birch, lowbush cranberry, bearberry, wild rose, and blueberry. The surrounding area has similar kinds of vegetation with the addition of dwarf willow and spruce. The dried lake contains a thick growth of grasses. Bedrock exposures occur throughout the site area and the surrounding terrain.

Reconnaissance Testing: The site was initially discovered when a flake was recovered from a shovel test. This shovel test was then expanded into a 40 cm x 40 cm test pit (test pit 1). An additional 8 shovel tests were excavated to determine the limits of the site area. All additional shovel tests and the 40 cm x 40 cm test pit were sterile of artifacts. No artifactual material was found on the surface of the site.

Collected Artifact Inventory:

Subsurface:

1 Quartzite flake (retouched)

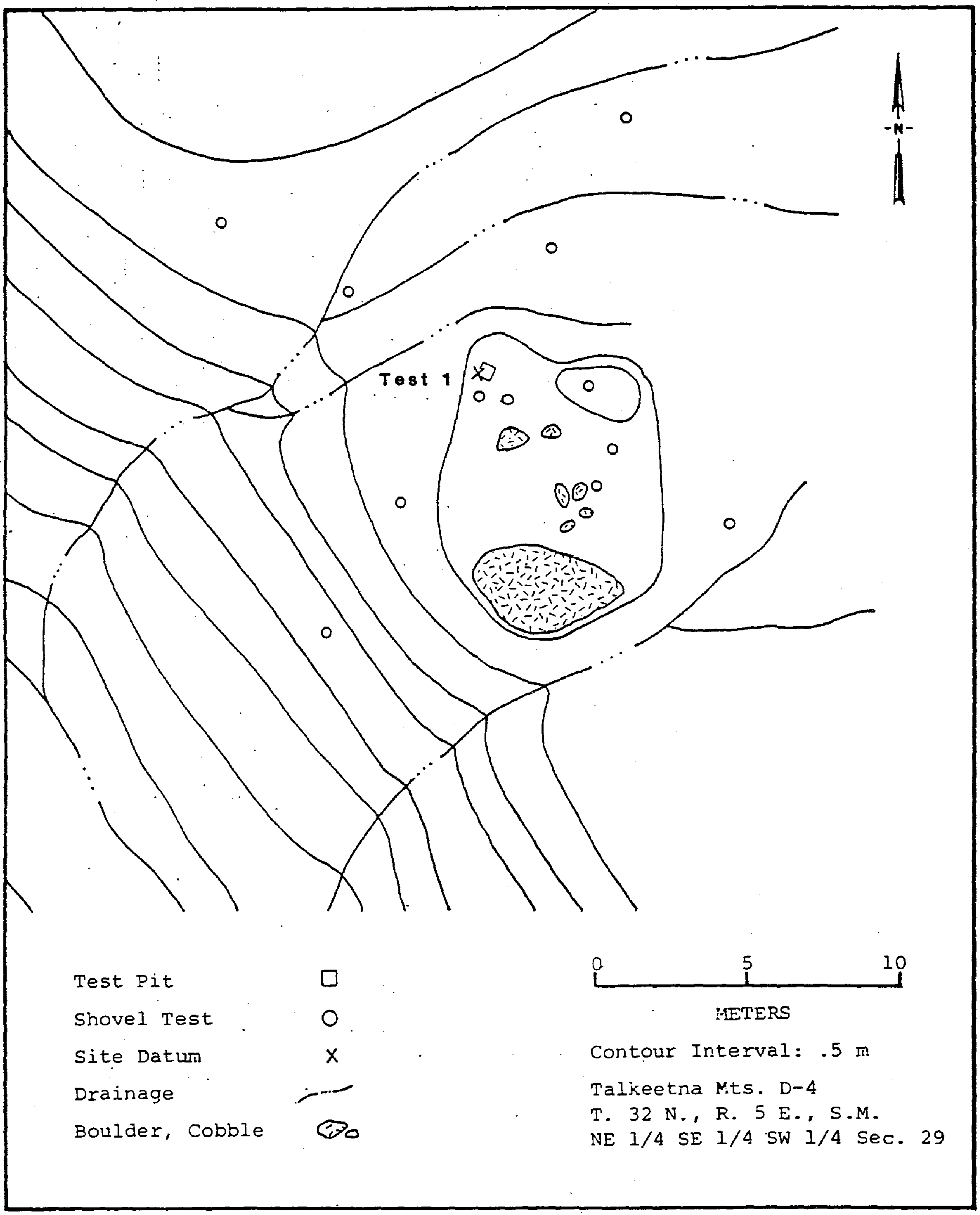


Figure 3.8. Site Map TLM 167.

AHRS Number TLM 168, Accession Number UA83-94

Area: Ca. 3 km West-southwest of the Outlet of Deadman Lake, Proposed Northern Access Route

Area Map: Figure A.3; Site Location Map: Figure A.50

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 432900 Northing 6985600

Latitude 62°59'45" N., Longitude 148°19'20" W.

T. 22 S., R. 4 W., Fairbanks Meridian

Sec. 21, SW¼SW¼NE¼

Site Map: Figure 3.9

Setting: TLM 168 is located at ca. 945 m asl (3100 feet) on an east slope overlooking the confluence of Deadman Creek and a northern tributary ca. 3 km west-southwest of the outlet of Deadman Lake. The slope is part of a glacial terrace on the west side of the valley through which Deadman Creek flows southwestward. The valley floor is ca. 35 m below the site. An unnamed stream, the first tributary of Deadman Creek after it leaves Deadman Lake, flows southward ca. 1.1 km east of the site. The terrace on which the site is located trends north-south for ca. 600 m and is 200 m wide. The site is located at the northern end of the terrace with another site, TLM 155, located ca. 100 m to the south on the same terrace. West of the sites, the slope rises sharply to summits in excess of 1524 m asl (5000 feet). To the east are a series of terraces overlooking the northern tributary of Deadman Creek. Deadman Lake and the southernmost ridge of Deadman Mountain are in view across the valley of the tributary. Sites TLM 098, TLM 099, TLM 117, and HEA 180 are in view to the east on both sides of the tributary. To the north, the tributary and its meanderings are flanked by irregularly spaced terraces. Vegetation on the site is limited to intermittant patches of mosses, lichens, lowbush cranberries, blueberries, and dwarf willow on a pavement of shattered rock. Dry alpine tundra and exposed rock characterize the surrounding region with dense brush along the margins of Deadman Creek and its tributary south of the site.

Reconnaissance Testing: A single banded gray chert burinated flake (UA83-94-1; Figure 3.65b) was found on the surface. Subsurface testing at test pit 1 and in eight shovel tests provided no additional cultural material. No tephras were apparent.

Collected Artifact Inventory:

Surface:

1 Burinated banded gray chert flake

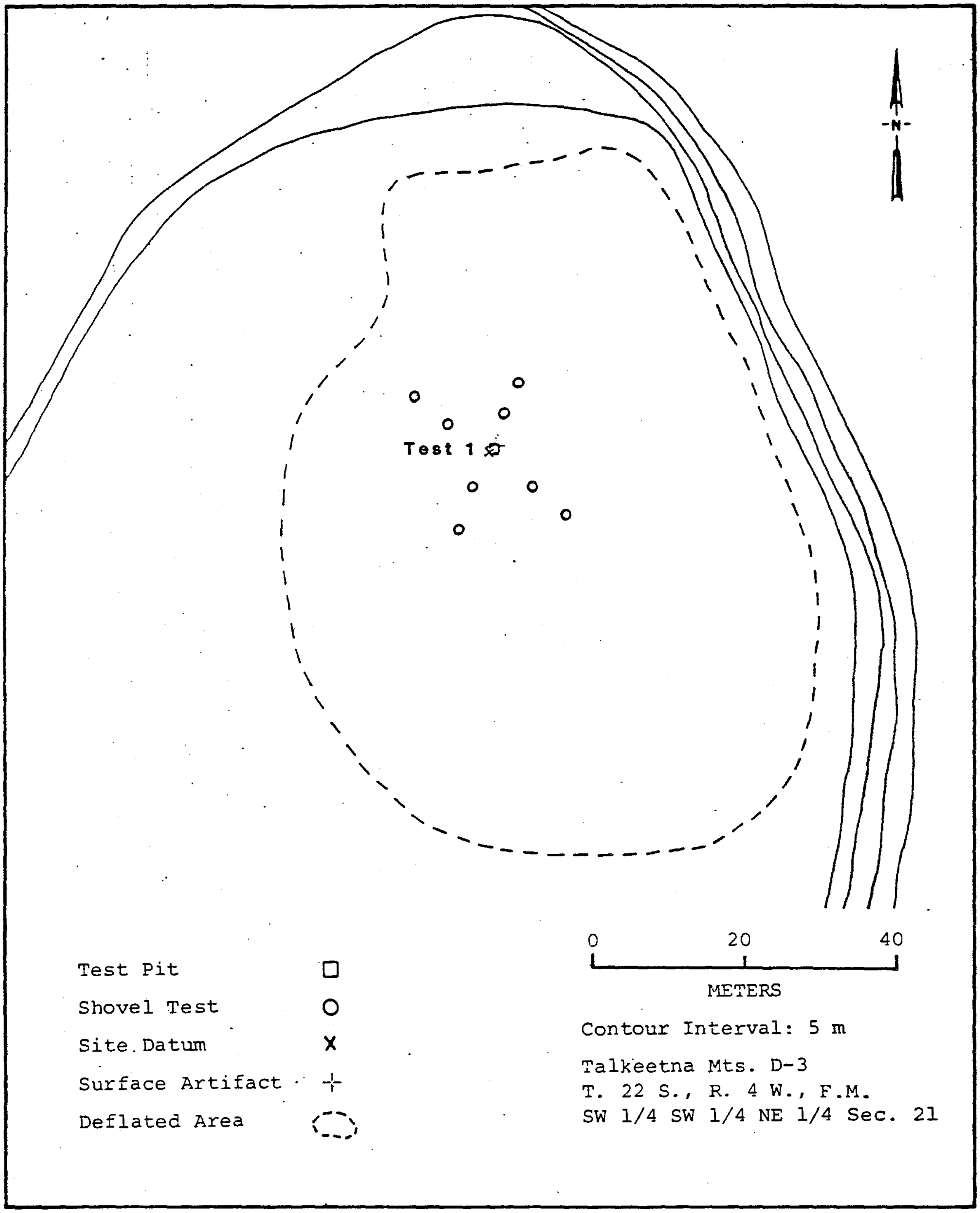


Figure 3.9. Site Map TLM 168.

AHRS Number TLM 169, Accession Number UA83-95

Area: Ca. 3.7 km Northeast of the Confluence of Watana Creek with the Susitna River, Survey Locale 144B

Area Map: Figure A.3; Survey Locale Map: Figure A.103

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 438600 Northing 6969600

Latitude 62°51'10" N., Longitude 148°12'15" W.

T. 32 N., R. 7 E., Seward Meridian

Sec. 19, SW¼NE¼NE¼

Site Map: Figure 3.10

Setting: TLM 169 is located on a high point on a ridge ca. 3.7 km northeast of the confluence of Watana Creek with the Susitna River and 1 km east of Watana Creek. The ridge is oriented north-northeast by south-southwest with the site situated on a knolltop in the middle of an "S"-shaped curve. The site occurs on the highest point of the ridge after its separation from a plain ca. 400 m east of the site. The ridge slopes downward to the west before terminating ca. 700 m west of the site at the edge of the Watana Creek valley. The south side of the ridge slopes downward at 30 degrees to a 25 m deep "V"-shaped valley. Opposite the valley, the plain is approximately 10 m below the level of the site at ca. 640 m asl (2100 feet). To the north, the terrain slopes gently toward the Watana Creek valley. The surrounding terrain is a gently sloping plain of ca. 640 m asl (2100 feet) covered with low bushes of dwarf birch and a soil cover of moss, lichens, and berry plants. Spruce trees are evenly distributed in the region, limiting the view from the site to the neighboring 50 m area despite the site's prominence on the ridge line. Vegetation on the site is more open, consisting of moss, lichens, and berry plants with birch and spruce trees on the site periphery.

Reconnaissance Testing: The site consists of a single gray quartzite biface (UA83-95-1; Figure 3.65c) found in test pit 1, located 2 m west of the knoll top. Eight additional shovel tests around test pit 1 were sterile. The biface was recovered from a charcoal horizon located at the contact of the Watana and Oshetna tephras.

Collected Artifact Inventory:

Subsurface:

1 Gray quartzite biface

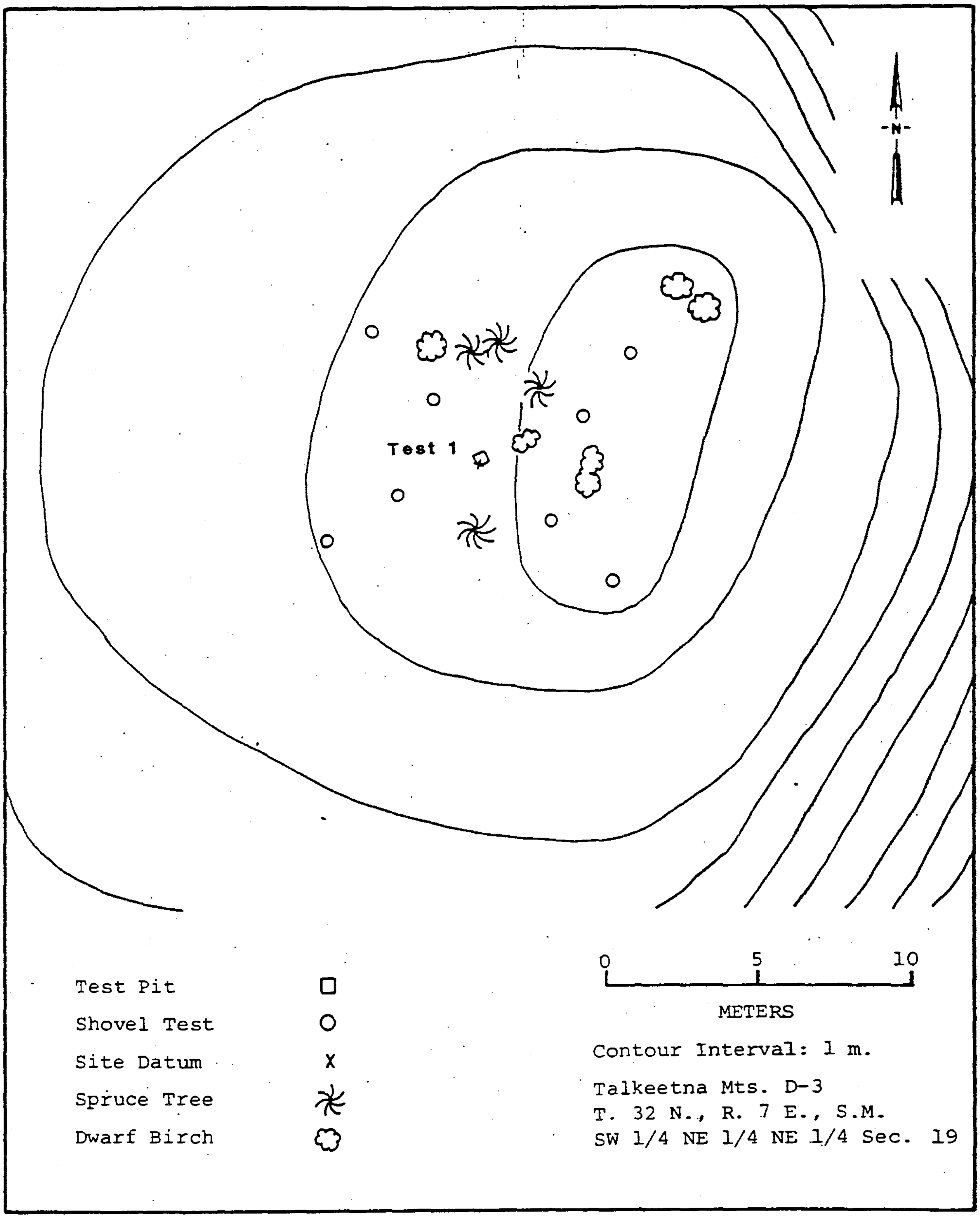


Figure 3.10. Site Map TLM 169.

AHRS Number TLM 170, Accession Number UA83-96

Area: Ca. 3.5 km North-northeast of the Mouth of Deadman Creek and 150 m West of Deadman Creek, Survey Locale 150

Area Map: Figure A.3; Survey Locale Map: Figure A.114

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 426150 Northing 6970500

Latitude 62°51'31" N., Longitude 148°27'00" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 14, NE¼SE¼SE¼

Site Map: Figure 3.11

Setting: TLM 170 is located on a small knoll ca. 150 m west of Deadman Creek and approximately 3.5 km upstream of its mouth. The site is located at an elevation of ca. 731 m asl (2400 feet) on a knoll forming the southern end of a 3 m wide kame ridge. The ridge is approximately 200 m long in a general north-south direction. At the site, the ridge slopes down to the south, west, and east at an angle of over 25 degrees. Down the steep slope to the west 25 m distant is a small pond of less than 1 hectare in area. To the east and south is an unobstructed view of Deadman Creek and the high plateau to the east of Deadman Creek. The view to the north encompasses the ridge on which the site is located and a distant view of Tsusena Butte. Site TLM 181 is visible ca. 500 m due north of the site, while approximately 300 m beyond TLM 181 is TLM 191. The view of TLM 191 is blocked by the ridge on which TLM 181 rests. The ridge line on which TLM 170 is located is the first high ground to the west of Deadman Creek. The knoll with TLM 170 has several large granitic boulders, probably glacial erratics, and has only a thin veneer of soil mantling the glacial drift. Vegetation consists of dwarf birch shrub, dwarf willow, blueberry, lichens, and mosses. One small spruce is located on top of the ridge at the site. Several more spruce are found south of the site near the base of the ridge and along Deadman Creek.

Reconnaissance Testing: The site consists of an erosional surface of approximately 5 m east-west and 4 m north-south on a 30 degree slope at the southeast terminus of a ridge. Two cores and twenty-five flakes of several lithologies were found on the surface. A test pit (test pit 1) and ten shovel tests failed to show any subsurface cultural material.

Collected Artifact Inventory:

Surface:

1 Olive rhyolite core
1 Gray chert core
9 Gray argillite flakes
5 Very light brown argillite flakes
3 Gray rhyolite flakes
3 Light green argillite flakes
1 Light brown rhyolite flake
1 Light green rhyolite flake
1 Basalt flake
1 Quartzite flake
1 Black chert flake

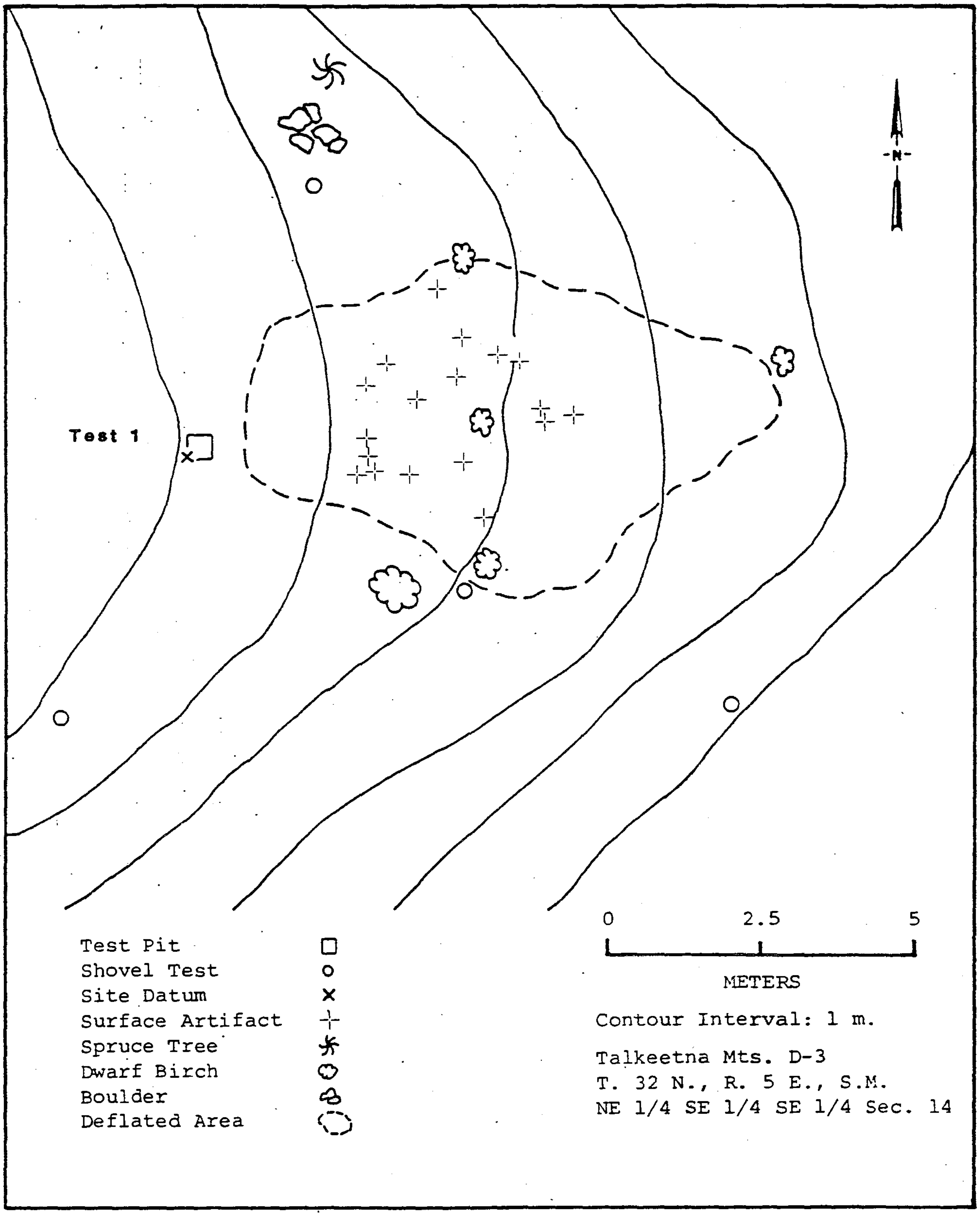


Figure 3.11. Site Map TLM 170.

AHRS Number TLM 171, Accession Number UA83-97

Area: Ca. 4.3 km West-northwest of the Confluence of Watana Creek with the Susitna River, Survey Locale 134

Area Map: Figure A.3; Survey Locale Map: Figure A.84

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 431900 Northing 6968600

Latitude 62°50'32" N., Longitude 148°20'15" W.

T. 32 N., R. 6 E., Seward Meridian

Sec. 21, SE¼SW¼SE¼

Site Map: Figure 3.12

Setting: TLM 171 is located on top of a northwest-southeast trending ridge ca. 700 m north of the Susitna River and 4.3 km northwest of the mouth of Watana Creek. The site is at an elevation of approximately 655 m asl (2150 feet) on a 10 m wide ridge. The sides of the ridge slope down at approximately 20 degrees to the surrounding terrain 15-30 m lower in elevation. The ridge rises ca. 30 m in elevation approximately 100 m northwest of the site. The ridge's southern terminus is marked by a knoll which is 1.5 m higher than the level of the site and lies 15 m to the southwest of the site. Visibility from the site is limited by its location in a saddle of the ridge and the occurrence of dense stands of spruce in the region. A pond of approximately 1 hectare in extent can be seen from the site ca. 200 m to the east. The pond is surrounded by swampy ground. The ridge with the site is one of a number of northwest-southeast trending ridges sloping down toward the pond from the higher terrain in the west. The area around the site is thickly vegetated with spruce with a ground cover of sphagnum moss, Labrador tea, blueberries, dwarf birch, and dwarf willow. The surrounding vegetation is composed of thick spruce stands in the low-lying areas between the ridges with a plant regime similar to that of the site occurring on the ridge tops.

Reconnaissance Testing: A possible proximal microblade fragment of gray translucent chert was found in a shovel test. Expansion of the shovel test into a 40 cm by 40 cm test (test pit 1) resulted in the finding of a chert flake in situ on top of the Devil tephra. A feature was located in the east profile of test pit 1 consisting of a thin lens of reddish silty clay, perhaps fire-reddened, in association with possible thermally altered rock. This possible feature is bounded by thin layers of charcoal which set it off from the adjacent Watana and Oshetna tephras. Ten shovel tests around test pit 1 were sterile.

Collected Artifact Inventory:

Subsurface:

1 Translucent gray chert proximal microblade fragment
1 Chert flake

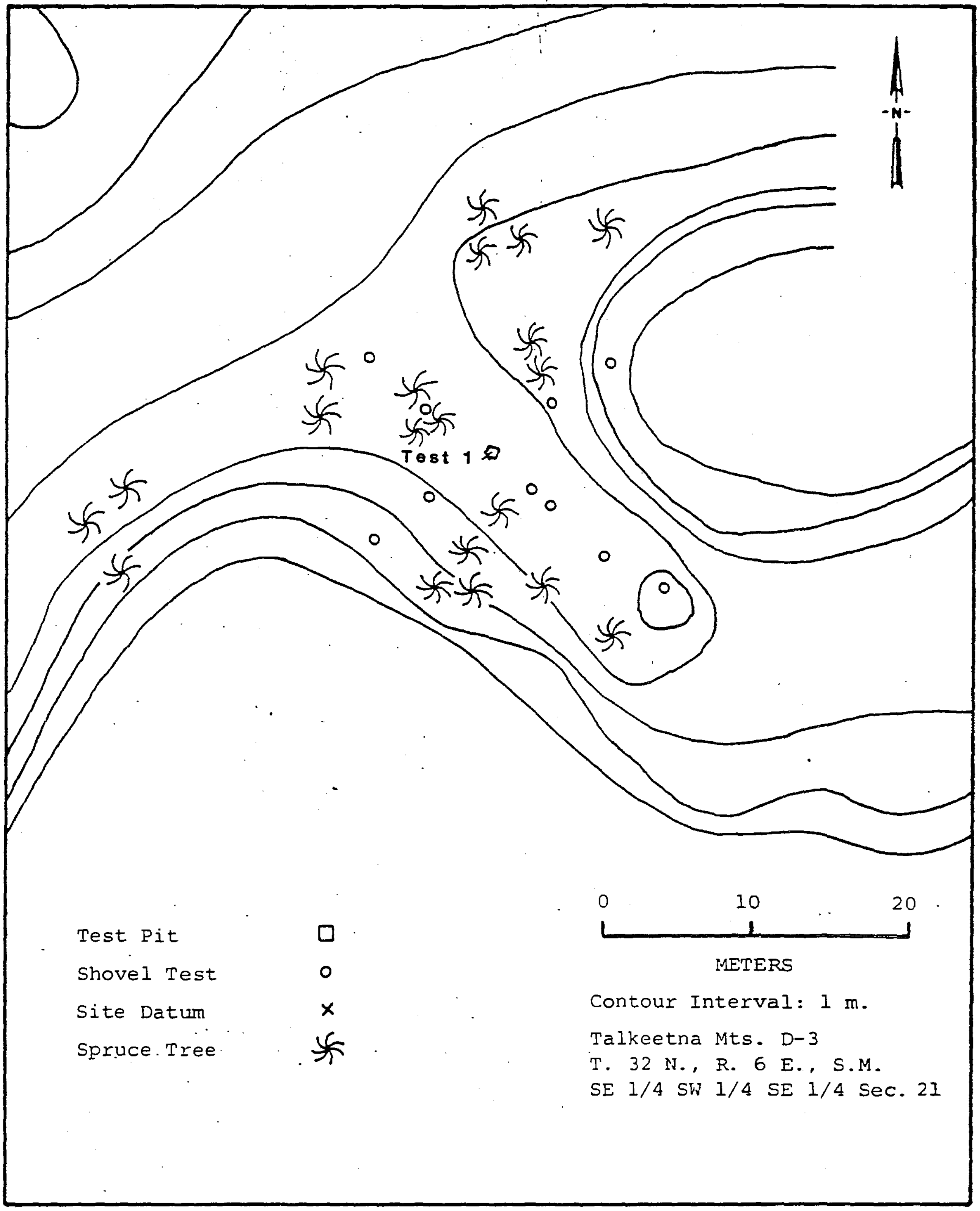


Figure 3.12. Site Map TLM 171.

3.2 - Reconnaissance Level Sites

AHRS Number TLM 153, Accession Number UA83-85

Area: Ca. 9.4 km North of Deadman Creek Mouth, Proposed Access Route
Area Map: Figure A.3; Site Location Map: Figure A.49
USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 426650 Northing 6976810

Latitude 62°54'57" N., Longitude 148°26'33" W.

T. 33 N., R. 5 E., Seward Meridian
Sec. 26, SE¼SE¼SE¼

Site Map: Figure 3.1

Setting: The site is situated on a small bluff along the west bank of Deadman Creek approximately 9.4 km from the confluence of Deadman Creek and Susitna River. The bluff is one of several glacial kames in an area dotted with kettle-kame topography. It is located on the top of the kame at an elevation of ca. 792 m asl (1600 feet). The glacial kame is approximately 90 m x 35 m in size at the top and is oriented east-northeast to west-southwest. The site is located on the eastern side of the kame overlooking Deadman Creek. To the north and west there is a gradually rising lacustrine plain. Looking southward from the site a panoramic view of Deadman Creek and its valley is afforded. The soil in the site area is well drained and supports flora composed of lichen, dwarf birch, dwarf alder, dogwood and some grasses. No spruce are growing on the kame top. The highland areas surrounding the site contain similar kinds of flora with some scattered spruce. The lowland areas are wet and contain more concentrated stands of spruce and dwarf shrubs.

Reconnaissance Testing: The site was initially identified by a surface flake exposed on a blowout area. A 40 cm x 40 cm test pit (test pit 1) was excavated adjacent the blowout area and produced an additional flake. Five shovel tests were excavated on the top of the kame and one of those five produced additional artifactual material. This shovel test was expanded into a 40 cm x 40 cm test pit (test pit 2) and produced flakes. All artifacts from test pit 2 were recovered from either the Watana/Oshetna contact or the Oshetna tephra. One additional surface flake of basalt was located on the kame surface but not collected.

Collected Artifact Inventory:

Surface:

1 Basalt flake

Subsurface:

21 Quartzite flakes
4 Basalt flakes
1 Argillite flake

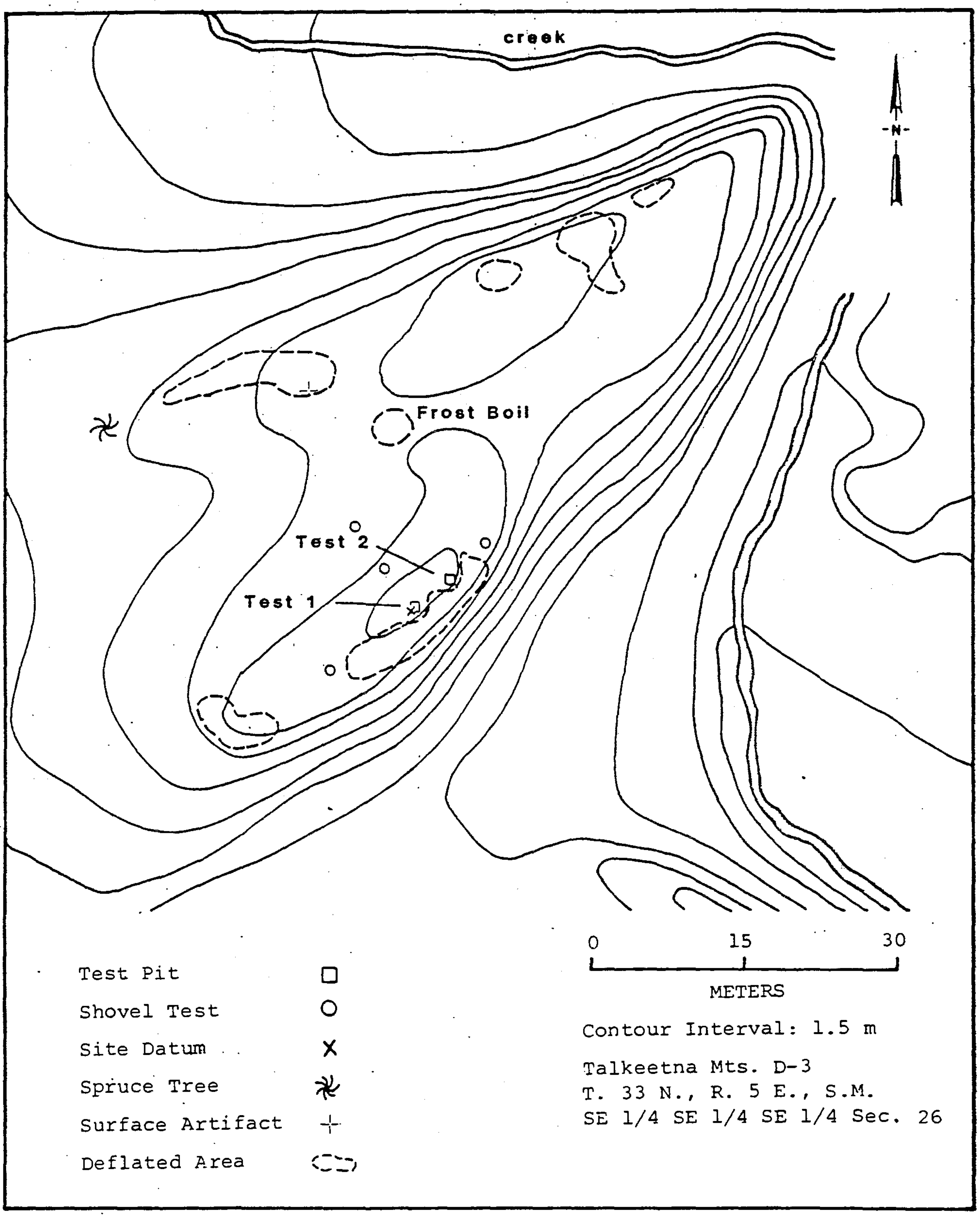


Figure 3.1. Site Map TLM 153.

AHRS Number TLM 155, Accession Number UA83-86

Area: Ca. 1.1 km Northwest of the Confluence of Deadman Creek and Tributary from the North, 5.5 km West of Big Lake, Survey Locale: Proposed Northern Access Route

Area Map: Figure A.3; Site Location Map: Figure A.50

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 432900 Northing 6985500

Latitude 62°59'44" N., Longitude 148°19'22" W.

T. 22 S., R. 4 W., Fairbanks Meridian
Sec. 21, SW¼SW¼NE¼

Site Map: Figure 3.2

Setting: TLM 155 is located approximately 1.1 km northwest of the confluence of Deadman Creek with its first major northern tributary below Deadman Lake. The site is on a relatively flat terrace at an elevation of ca. 995 m asl (3200 feet) with a ridge to the west attaining ca. 1067 m asl (3500 feet). The terrace is oriented north-south on the east slope of the valley of a northern tributary of Deadman Creek. The site is located on the southern edge of the terrace and is ca. 750 m west of the southward flowing Deadman Creek tributary. A small stream bisects the ca. 600 m long by 200 m wide terrace ca. 200 m north of TLM 155. Another site, TLM 168, is located approximately 100 m north of TLM 155 on the same terrace. The valley floor is ca. 35 m below the terrace east of the sites. To the east below the site are a series of terraces bordering the tributary of Deadman Creek on which sites TLM 098, TLM 099, TLM 117, and HEA 180 are found. To the north, the tributary meanders through a valley flanked by irregularly spaced terraces. Vegetation on TLM 155 is limited to dry alpine tundra consisting of mosses, lichens, berries, and dwarf birch among exposed areas of shattered rock and drift. The surrounding terrain is similarly vegetated with high brush occurring adjacent to the confluence of Deadman Creek and its northern tributary south of TLM 155.

Reconnaissance Testing: Surface reconnaissance resulted in the recovery of three argillite flakes from the exposed rocky surface of the site. No subsurface cultural material was found in test pit 1 adjacent to the first discovered flake or in six shovel tests placed to the east, south, and west. The surface flake scatter extended for 16 m north-south. The subsurface tests showed little soil development with no tephras discernable.

Collected Artifact Inventory:

Surface:

3 Argillite flakes

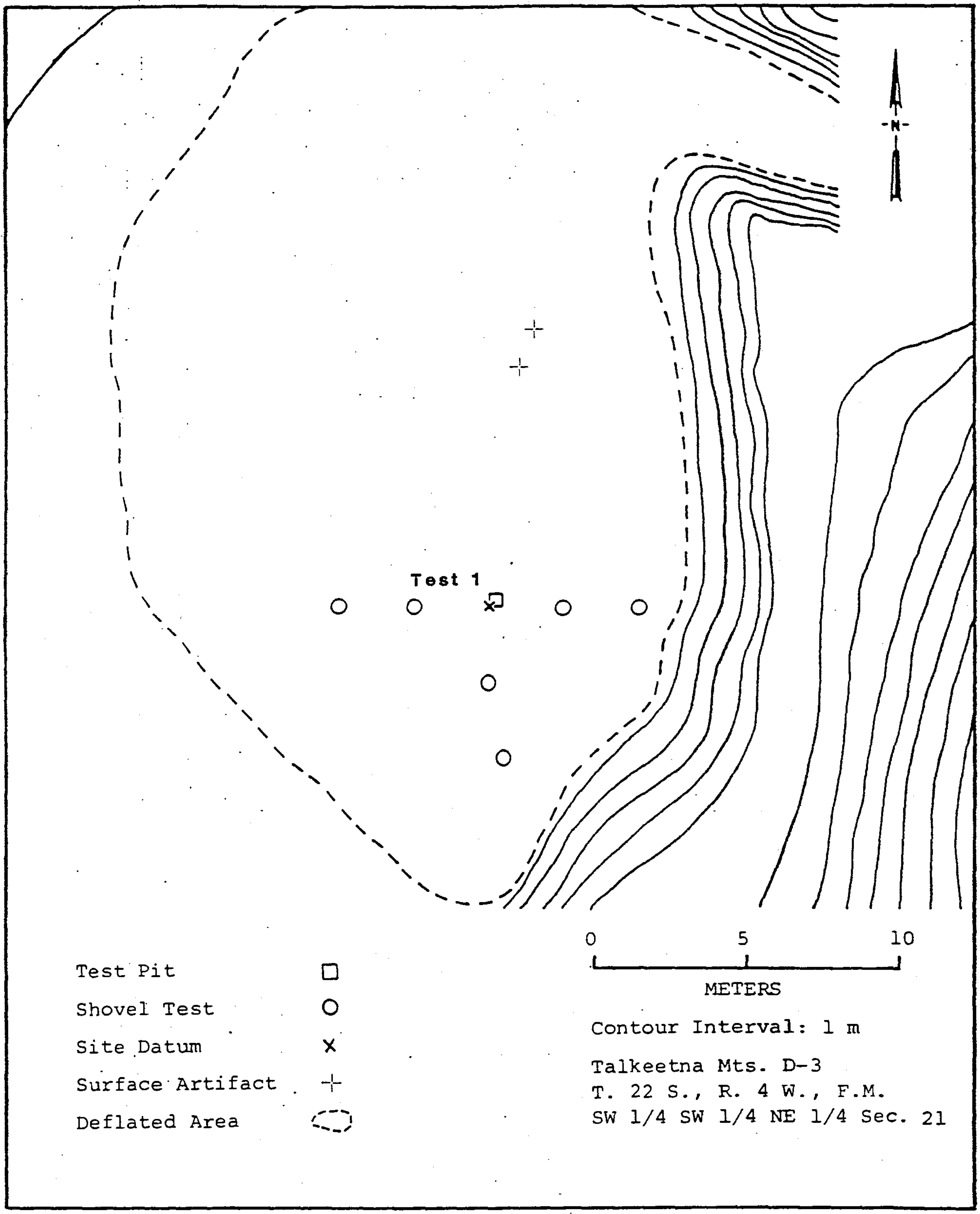


Figure 3.2. Site Map TLM 155.

AHRS Number TLM 159, Accession Number UA83-88

Area: Ca. 5 km Northwest of the Confluence of Watana Creek and Delusion Creek, Survey Locale 136

Area Map: Figure A.3; Survey Locale Map: Figure A.87

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 434450 Northing 6972600

Latitude 62°52'45" N., Longitude 148°17'12" W.

T. 32 N., R. 6 E., Seward Meridian

Sec. 11, SE¼SW¼NW¼

Site Map: Figure 3.3

Setting: The site is located on a discrete knoll approximately 670 m asl (2200 feet). The knoll is situated ca. 700 m east of an unnamed creek which flows southward for ca. 5 km to the confluence of Susitna River. The unnamed creek lies approximately 8 km east of Deadman Creek and 3.2 km west of Watana Creek. The knoll itself is oval in shape and contains a flat area at the top which is 20 m x 10 m in size. The top slopes off at about a 30 to 35 degree angle to a basal circumference of approximately 125 m x 50 m. The long axis of the knoll is oriented in a northeast to southwest direction. The site appears to be confined to the portion at the top of the knoll. The site setting affords a panoramic view of the creek valley to the west, the mountain ranges abutting the southern edge of the Susitna River, and the ridges surrounding the creek valley in all cardinal points for approximately 5 km. Surface vegetation at the site is characteristic of a well-drained upland spruce hardwood ecosystem. Flora present at the site are: white spruce, dwarf birch, dwarf willow, low bush cranberry, reindeer moss, dwarf Labrador tea and some grasses. The area surrounding the site contains similar vegetation on the knoll tops and high ridges. The lowland areas surrounding the site are composed of moist tundra vegetation and lowland spruce-hardwood forests.

Reconnaissance Testing: No artifactual material was recovered from the surface of the site. Five shovel tests were excavated into the site area and one of those five produced artifacts. Shovel test 1 produced 31 flakes and then was expanded into test pit 1. Test pit 1 produced 114 flakes of numerous lithologies and a single nodule which appears to be a core. In addition to chipped stone artifacts, a large granite cobble (20 cm x 22 cm) was found within the Oshetna tephra stratum and upon the glacial drift stratum. Because of its position, and the associated artifacts, the cobble was regarded as a possible feature. As such, test pit 1 was expanded in the northeast corner to isolate the suspected feature. Upon expansion, another large cobble was located in association with the original cobble along with more chipped stone artifacts. To follow up the feature, test pit 1 and its associated extension was expanded into a 1 m x 1 m test square. Approximately 300 flakes were collected from the Watana/Oshetna contact and the Oshetna tephra. In addition, one microblade was recovered (UA83-88-27, Figure 3.65a). The stone feature was non-diagnostic but possibly cultural in origin.

Collected Artifact Inventory:

Subsurface:

1 Rhyolite cobble/core
1 Granite pebble
1 Chert microblade
1 Quartzite biface fragment
42 Quartzite flakes
177 Chert flakes
27 Rhyolite flakes
76 Argillite flakes
4 Basalt flakes
2 Chalcedony flakes
31 Very weathered flakes

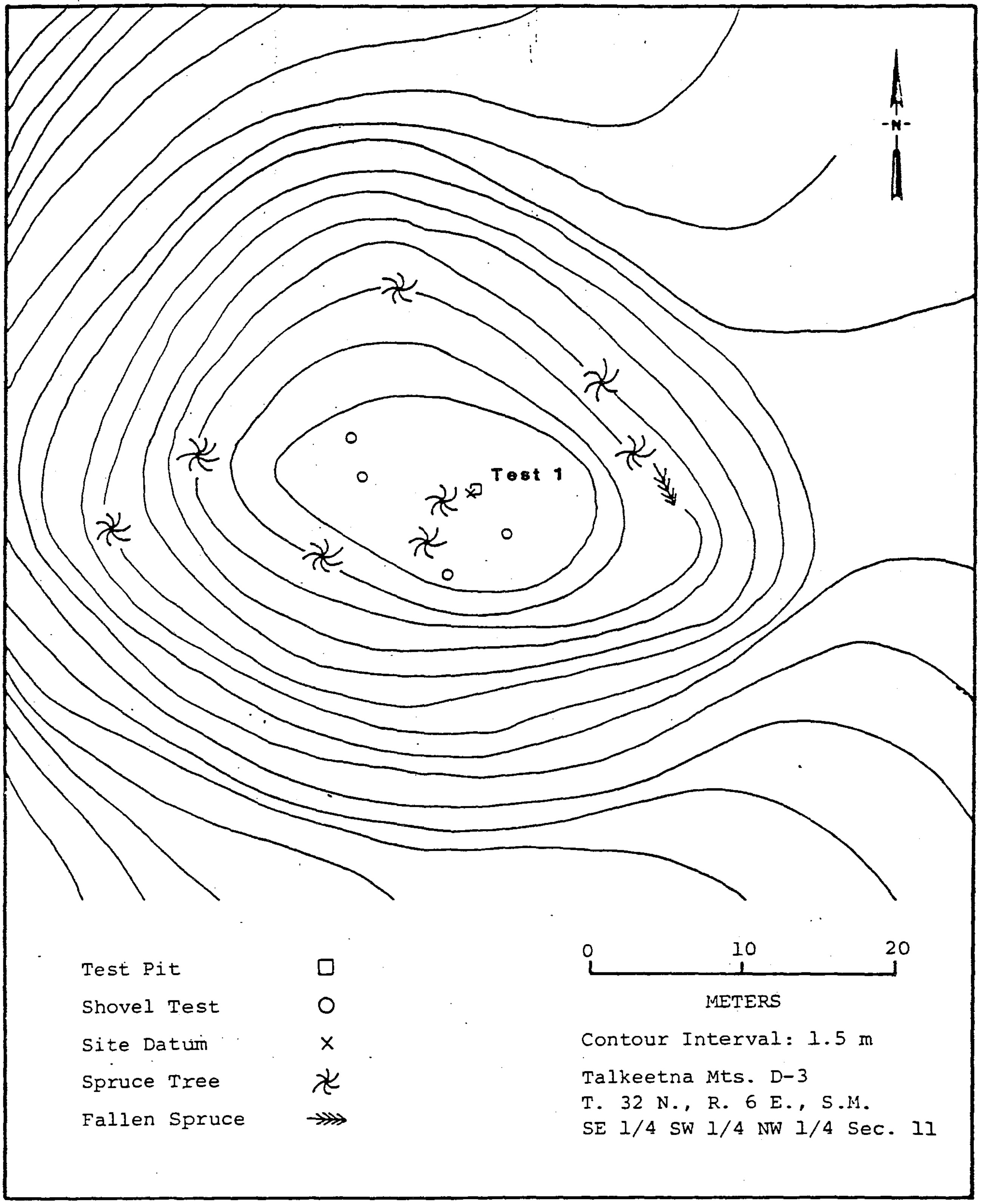


Figure 3.3. Site Map TLM 159.

AHRS Number TLM 160, Accession Number UA83-89

Area: Ca. 1.8 km East of Tsusena Creek and Approximately 2 km North of Susitna River, Survey Locale 151

Area Map: Figure A.2; Survey Locale Map: Figure A.115

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 422800 Northing 6969210

Latitude 62°50'47" N., Longitude 148°30'56" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 21, SE¼NE¼SE¼

Site Map: Figure 3.4

Setting: The site is located on the west end of a discrete knoll which rises to approximately 701 m asl (2300 feet). The knoll is about 80 m along its east to west axis and about 15 m wide. The site is situated about 2 km north of the Susitna River and approximately 1.8 km east of Tsusena Creek. Neither the creek nor the Susitna River can be seen from the site because of the deeply incised valley walls. The site is associated with a lake system. There are four lakes within 200 m of the site. The largest lake is approximately 13 hectares and the smallest is about 0.5 hectares. All of the lakes appear not to have a clear drainage path into the Tsusena Creek or the Susitna River. In addition to the surrounding lake system, the site affords a panoramic view of the region for 360 degrees. The ecosystem for the site area is generally characterized as low shrub. Species of flora consist mostly of dwarf birch, Labrador tea, reindeer lichen, moss, blueberry, and a few small spruce. The center of the knoll has the densest patch of birch. The surrounding terrain, except along the lakeshore is characterized as upland spruce-hardwood, with dwarf birch, mosses and lichens predominating. The area along the lake can be characterized as lowland spruce with grasses and tussocks.

Reconnaissance Testing: No surface artifacts were found at the site. A total of six shovel tests were excavated into the site area. One of these shovel tests was expanded into a 40 cm x 40 cm test pit (test pit 1) after a flake was discovered. The flake removed from this shovel test was collected without stratigraphic provience. Two subsequently excavated flakes from test pit 1 were found within the Oshetna tephra level. All flakes were small, and heavily weathered.

Collected Artifact Inventory:

Subsurface:

3 Heavily weathered flakes

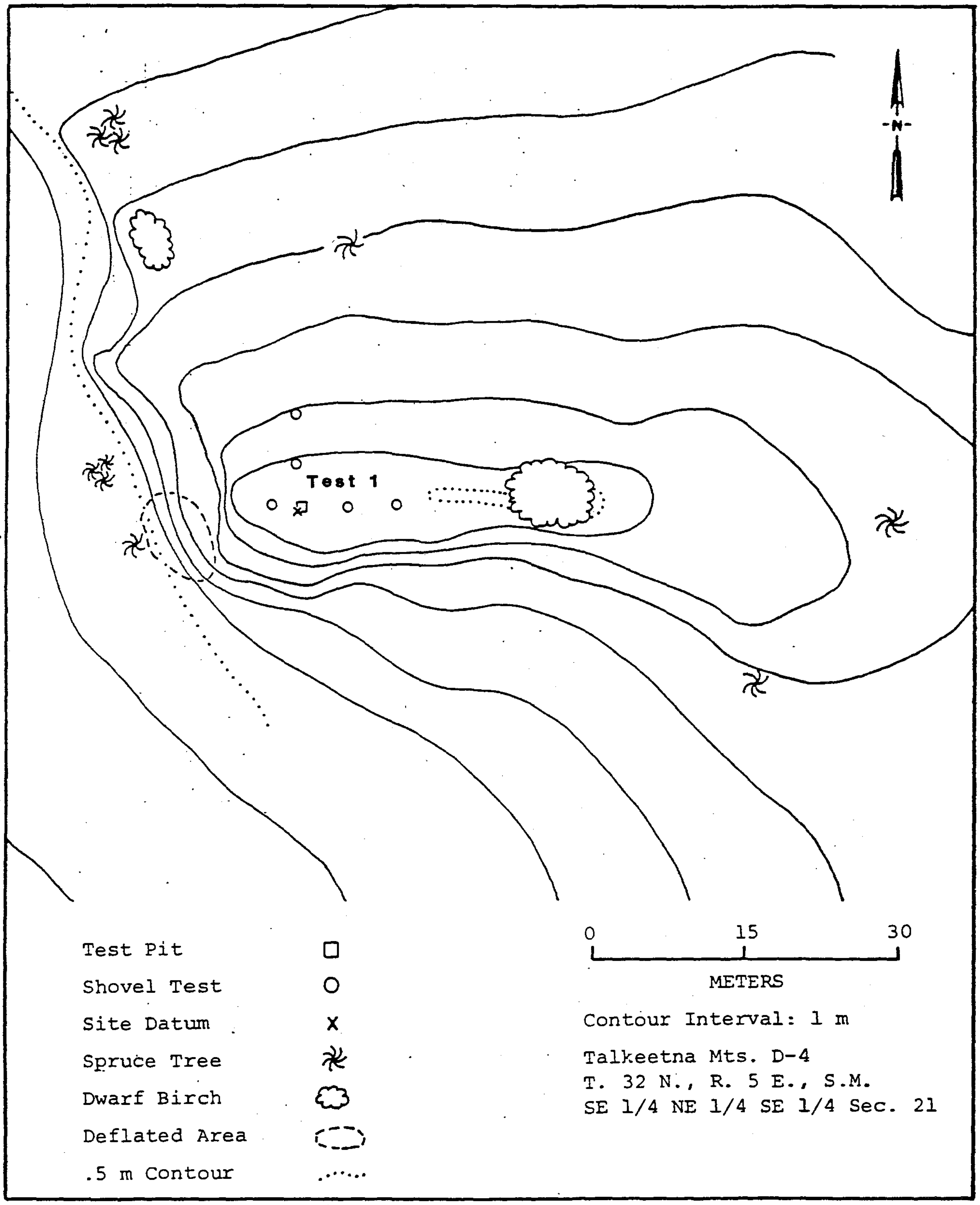


Figure 3.4. Site Map TLM 160.

AHRS Number TLM 172, Accession Number UA83-98

Area: Ca. 4.5 km Northeast of the Confluence of Tsusena Creek with the Susitna River, Survey Locale 152

Area Map: Figure A.2; Survey Locale Map: Figure A.117

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 421550 Northing 6969100

Latitude 62°50'44" N., Longitude 148°32'23" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 21, SE¼NW¼SW¼

Site Map: Figure 3.13

Setting: The site is located on a level bench on the west slope of a ridge ca. 600 m east of Tsusena Creek and 2.6 km north of the Susitna River. The site is located at an elevation of ca. 670 m asl (2200 feet) while higher knolls on the ridge occur to the north-northwest and south-southeast. The region around the site is marked by kettle lakes and kames with drainages trending to the west and northwest toward Tsusena Creek. West of the site the ridge drops 10 m at a slope of greater than 25 degrees to a drainage running to the northwest. This drainage separates the ridge with the site from a lower, parallel ridge to the west. Numerous small lakes and ponds occur to the north and northeast. The closest lake is ca. 2 hectares in size and situated out of view ca. 500 m to the northeast. Approximately one quarter kilometer south of the site the ridges drop into an area of marshes and low knolls. Approximately one kilometer south of the site is a stream separating the region of the site from a large ridge of ca. 729 m asl (2391 feet) bordering the Susitna River. Site TLM 018 is visible near the ridge crest. TLM 172 is marked by a 1.5 m high granite boulder surrounded by moss, lichen, Labrador tea, and dwarf birch. Vegetation in the surrounding area consists of thinly distributed black spruce and bushes of dwarf birch. Northeast of the site, the wet tundra has few trees and low shrub cover. South of the site, dense stands of spruce and birch occur in the drainage and extend from this drainage half way up the north slope of the high ridge overlooking the Susitna. Moss, lichen, and berries dominate the upper half of this ridge. The primary view from the site is over the ridges to the south and west.

Reconnaissance Testing: The site contains subsurface cultural material from test pit 1 consisting of a light brown argillite, unifacially retouched blade (UA83-98-1, Figure 3.65d) and five argillite flakes. The cultural material was recovered from the charcoal-bearing level that is either at the contact between the Oshetna and Watana tephras or in the upper portion of the Oshetna tephra. No features were found. All three tephra were present and a carbon layer was occasionally present between the Watana and Oshetna tephras. Nine shovel tests within 10 m of test pit 1 were sterile.

Collected Artifact Inventory:

1 Light brown argillite unifacially retouched blade
5 Light brown argillite flakes

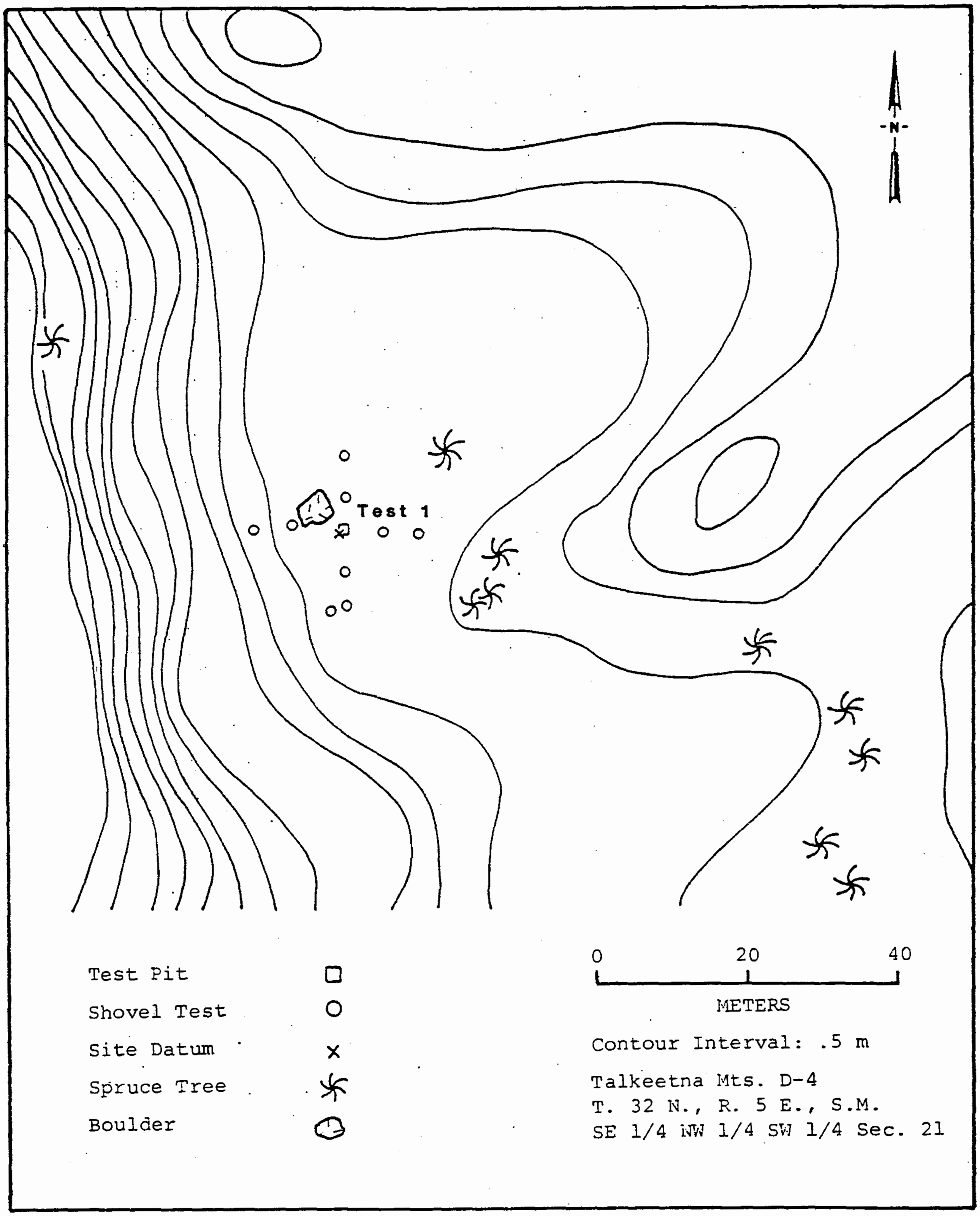


Figure 3.13. Site Map TLM 172.

AHRS Number TLM 173, Accession Number UA83-99

Area: Ca. 700 m East-southeast of the Confluence of Goose Creek with the Susitna River, Survey Locale 159

Area Map: Figure A.8; Survey Locale Map: Figure A.125

USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 478350 Northing 6945500

Latitude 62°38'28" N., Longitude 147°25'18" W.

T. 30 N., R. 11 E., Seward Meridian
Sec. 32, SE¼SE¼SE¼

Site Map: Figure 3.14

Setting: TLM 173 is located on an undulating terrace ca. 700 m east-southeast of the mouth of Goose Creek. The terrace is the lowest of three terraces which begin ca. 75 m south of the Susitna River. The terrace with the site is transected by small streams resulting in the formation of many isolated promontories that overlook the Susitna River and adjacent floodplain. The promontory with the site is located at ca. 625 m asl (2050 feet) and is 10 m above the Susitna River floodplain. North of the Susitna River is an old river terrace of ca. 670 m asl (2200 feet) on which sites TLM 026 and TLM 042 are found. South of TLM 173 are higher terraces below a plain of approximately 762 m asl (2500 feet) elevation a kilometer distant. The floodplain and terraces in the vicinity of the site are bounded by the Oshetna River ca. 2 km to the east and Goose Creek ca. 700 m to the west. The location of the site provides an excellent view of the floodplain and Susitna River to the north. The surface of the site is vegetated with black spruce and white spruce among high brush of dwarf birch. The surrounding area is predominantly high brush with scatter spruce trees. Except for the terraces the region is poorly drained.

Reconnaissance Testing: A single basalt flake was found in a shovel test and may have originated in or below the Watana tephra. Expansion of the initial shovel test (test pit 1) and eight additional subsurface tests failed to uncover additional cultural material.

Collected Artifact Inventory:

Subsurface:

1 Basalt flake

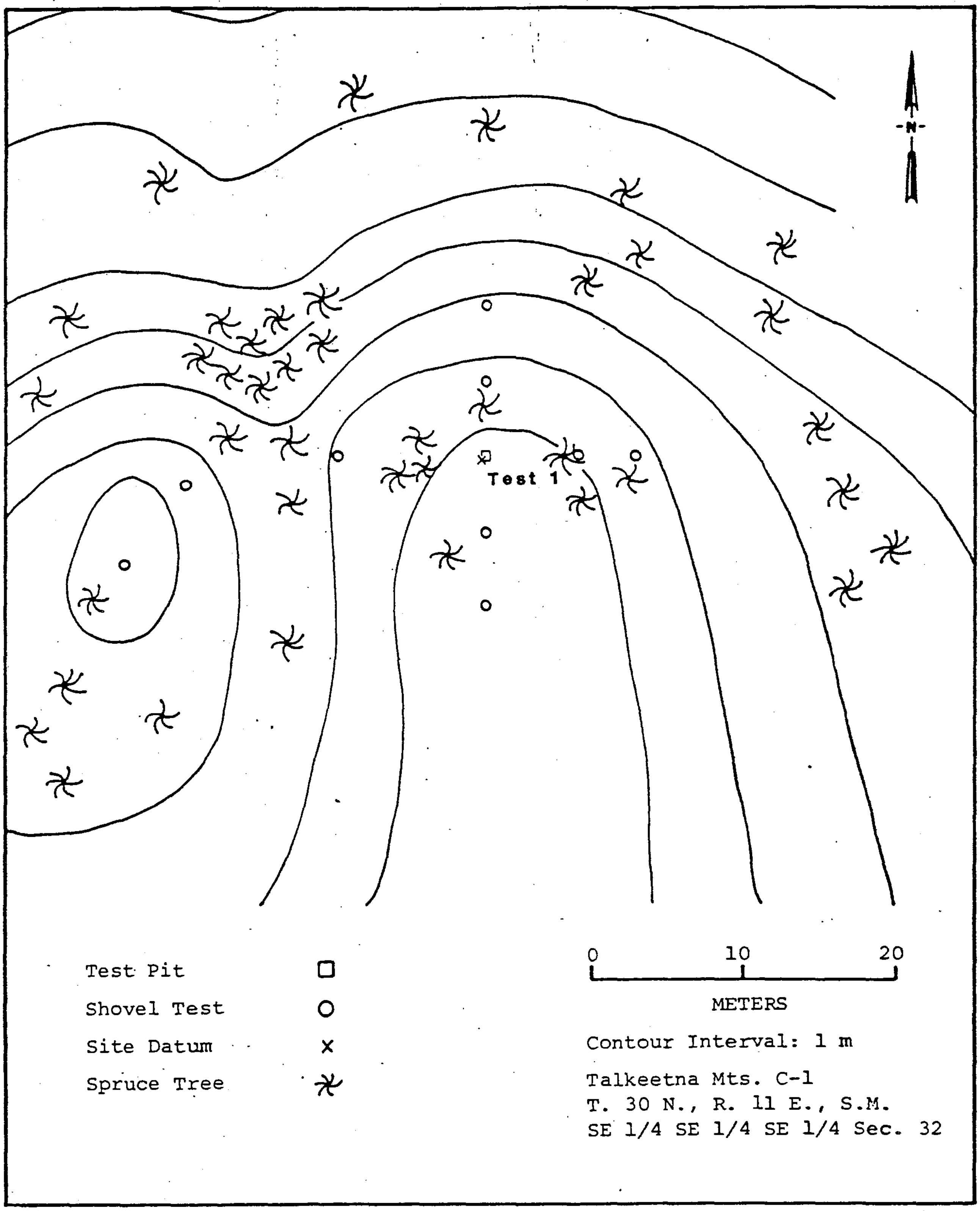


Figure 3.14. Site Map TLM 173.

AHRS Number TLM 174, Accession Number UA83-100

Area: Ca. 2.6 km Northeast of Watana Creek Mouth, Survey Locale 144A
Area Map: Figure A.3; Survey Locale Map: Figure A.101
USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 438200 Northing 6968450

Latitude 62°50'35" N., Longitude 148°12'45" W.

T. 32 N., R. 7 E., Seward Meridian
Sec. 19, SW¼SW¼SE¼

Site Map: Figure 3.15

Setting: The site is located at ca. 625 m asl (2050 feet) on a low circular knoll approximately 2.6 km northeast of the Watana Creek and Susitna River confluence. The knoll is one of a series of knolls and ridges that are of a similar elevation and are distributed around the immediate site area. Surface morphology varies from low poorly drained areas on gentle sloping drainage bottoms, to lichen-covered knolls, isolated ridges and interlying ponds. The knoll on which TLM 174 is located is a glacial drift kame feature. It is approximately 50 m in diameter at the base and 15 m in diameter at the apex. The site is about 5 m higher than the surrounding terrain and gradually slopes into poorly drained areas to the north, south and east. To the west the knoll tapers slightly upward into a low broad ridge. The view from the site is panoramic, only occasionally obstructed by a moderately dense mixed white spruce and birch forest. Approximately 250 m to the northwest is a small pond, less than 1 hectare, clearly visible and accessible. The upper portion of the Duck Embryo Lake ("Sally Lake") outlet valley is visible to the east, and the Susitna River valley walls and south plateau can be seen across the valley. Vegetation on the knoll consists of a continuous heath ground cover and includes reindeer lichen, moss, lowbush berries, Labrador tea, dwarf birch and occasional spruce. Vegetation is denser on the slopes, along drainages, and in lower intervening areas.

Reconnaissance Testing: The site inventory consists of subsurface lithic material. Two chalcedony flakes were recovered from a shovel test extending below the brownish Watana tephra unit overlying glacial drift material. The exact stratigraphic position for these flakes is uncertain. One of the flakes has bifacial retouch along two lateral margins that converge to form a point. The shovel test was expanded into a 40 cm x 40 cm test pit (test pit 1). One additional flake was located in situ at the contact between the Watana tephra unit and a reworked Oshetna unit. An additional eight shovel tests placed about the upper extent of the knoll produced no additional cultural material.

Collected Artifact Inventory:

Subsurface:

1 Chalcedony flake
1 Chalcedony flake with bifacial retouch on margins (biface tip?)
1 Weathered argillite flake

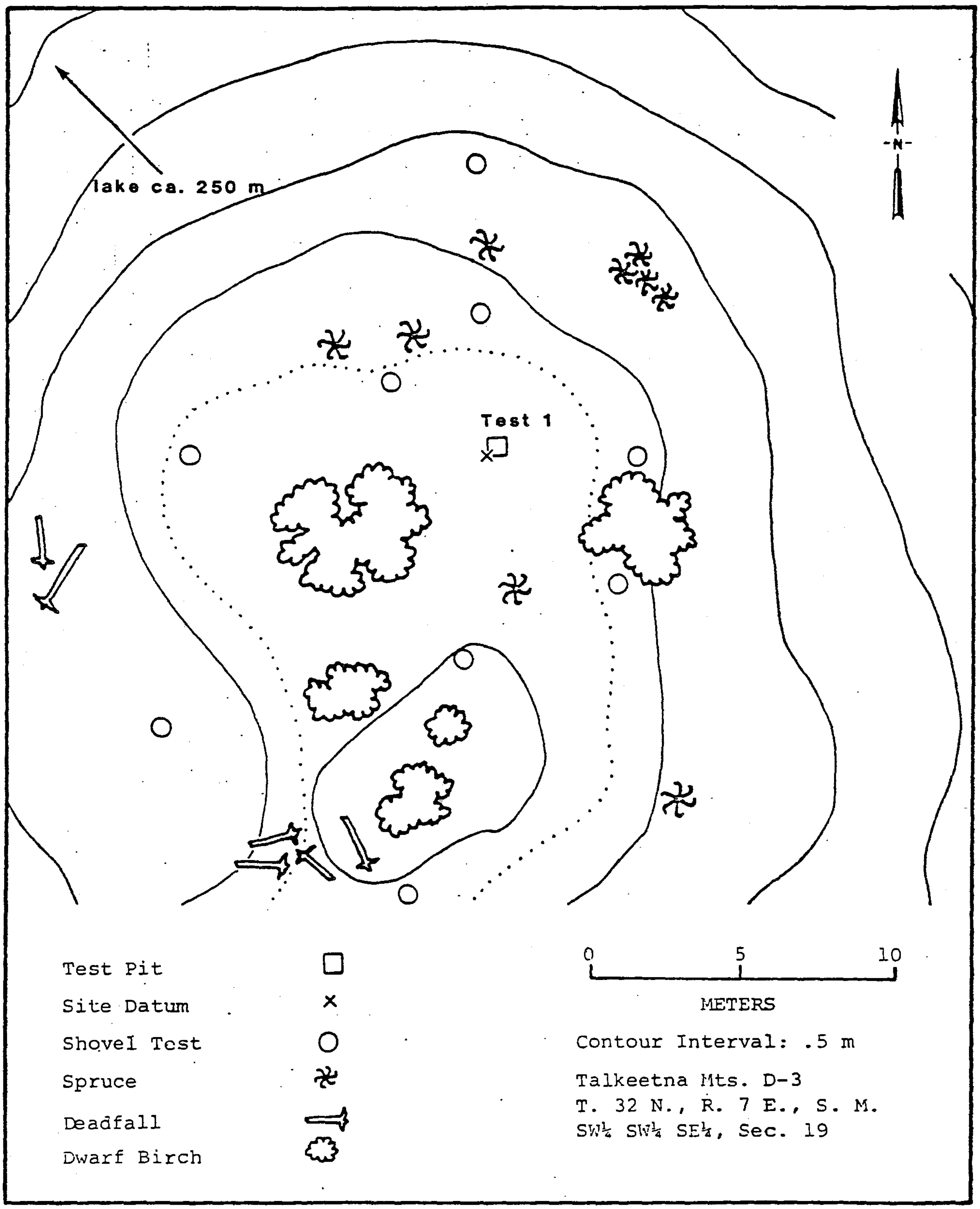


Figure 3.15. Site Map TLM 174.

AHRS Number TLM 175, Accession Number UA83-101

Area: West Side Northern Outlet of Duck Embryo Lake ("Sally Lake"), Survey Locale 27

Area Map: Figure A.3; Location Map: Figure A.61

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 439350 Northing 6967950

Latitude 62°50'18" N., Longitude 148°11'20" W.

T. 32 N., R. 7 E., Seward Meridian

Sec. 29, SW¼NE¼NW¼

Site Map: Figure 3.16

Setting: TLM 175 is located at approximately 625 m asl (2050 feet) on a discrete knoll overlooking the northwestern end of Duck Embryo Lake ("Sally Lake") and ca. 50 m from its upper outlet stream. The knoll is roughly circular and rises about 4 m above, and to the west of, the lake and outlet stream. Knolls of similar size are present to the west and northwest of the site. The view to the east is somewhat obscured by the knoll on which TLM 048 is located, at a distance of approximately 200 m and approximately 25 m higher than TLM 175. Views to the southeast and south are unobscured for about 1 km, across the ca. 30 hectare lake and low rolling terrain beyond it. The prominent knoll on which TLM 039 is located can be seen to the southeast across the lake at a distance of ca. 700 m. Site vegetation consists of low shrubs, scattered spruce, and a thin moss-lichen mat across the relatively flat top of the site knoll. Surrounding vegetation is composed of birch-willow shrub and woodland black spruce forest. Scattered birch and poplar occur on more well drained slope surfaces, knolls and low ridges, and along breaks in slope.

Reconnaissance Testing: No surface artifacts were present at this site. A shovel test placed in the north central part of the knoll top uncovered a weathered argillite elongate projectile point (UA83-101-1; Figure 3.65e). Provenience is uncertain although the artifact was covered with a brownish gray matrix suggesting its placement near the Devil tephra unit. One pale green chert flake was recovered during excavation of a 40 cm x 40 cm test pit (test pit 1), from the contact of the Devil and Watana units at a depth of 7 cm below surface. Four additional shovel tests to the north, south, east, and west of the test pit were sterile.

Collected Artifact Inventory:

Subsurface:

1 Argillite projectile point
1 Pale green chert flake

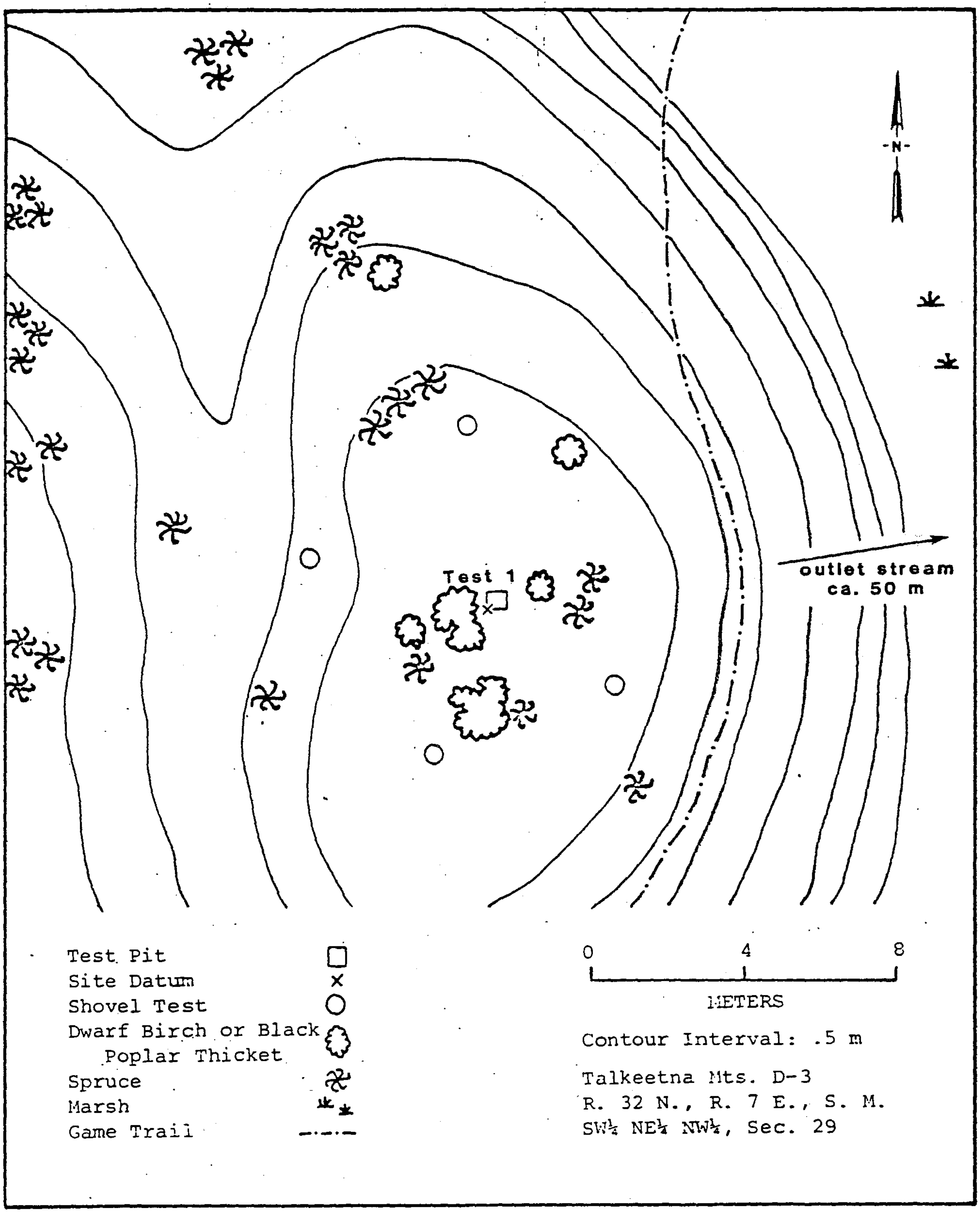


Figure 3.16. Site Map TLM 175.

AHRS Number TLM 176, Accession Number UA83-102

Area: Ca. 100 m North of Clark Creek and ca. 700 m west of Tsusena Creek, Proposed Borrow F

Area Map: Figure A.2; Location Map: Figure A.128

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420250 Northing 6976700

Latitude 62°54'45" N., Longitude 148°34'10" W.

T. 33 N., R. 5 E., Seward Meridian

Sec. 31, NE¼NE¼NE¼

Site Map: Figure 3.17

Setting: TLM 176 is located at an elevation of ca. 732 m asl (2400 feet) approximately 100 m north of Clark Creek and 700 m west of Tsusena Creek. The site is on a knoll which is one of a series occurring in a west-east trending ridge system north of Clark Creek. The ridge system trends downwards to the confluence of Clark Creek and Tsusena Creek, which is located ca. 750 m to the east-southeast. To the south the knoll slopes down 4 m to a terrace like feature overlooking Clark Creek, approximately 20 m below the terrace. To the west is Clark Creek and the hills beyond it. To the east is the 1.3 km wide Tsusena Creek valley and beyond that is the west slope of Tsusena Butte. The site is located on the west central portion of the knoll, which is approximately 27 m east-west and 20 m north-south. The knoll is covered with mosses, lichens, dwarf dogwood, crowberries, blueberries, Labrador tea, dwarf birch and scattered spruce trees. The areas surrounding the knoll have similar vegetation, although lower lying areas have thicker moss coverings. There is a large boulder field, approximately 35 m east-west by 20 m north-south, located in a ravine ca. 25 m north of the site.

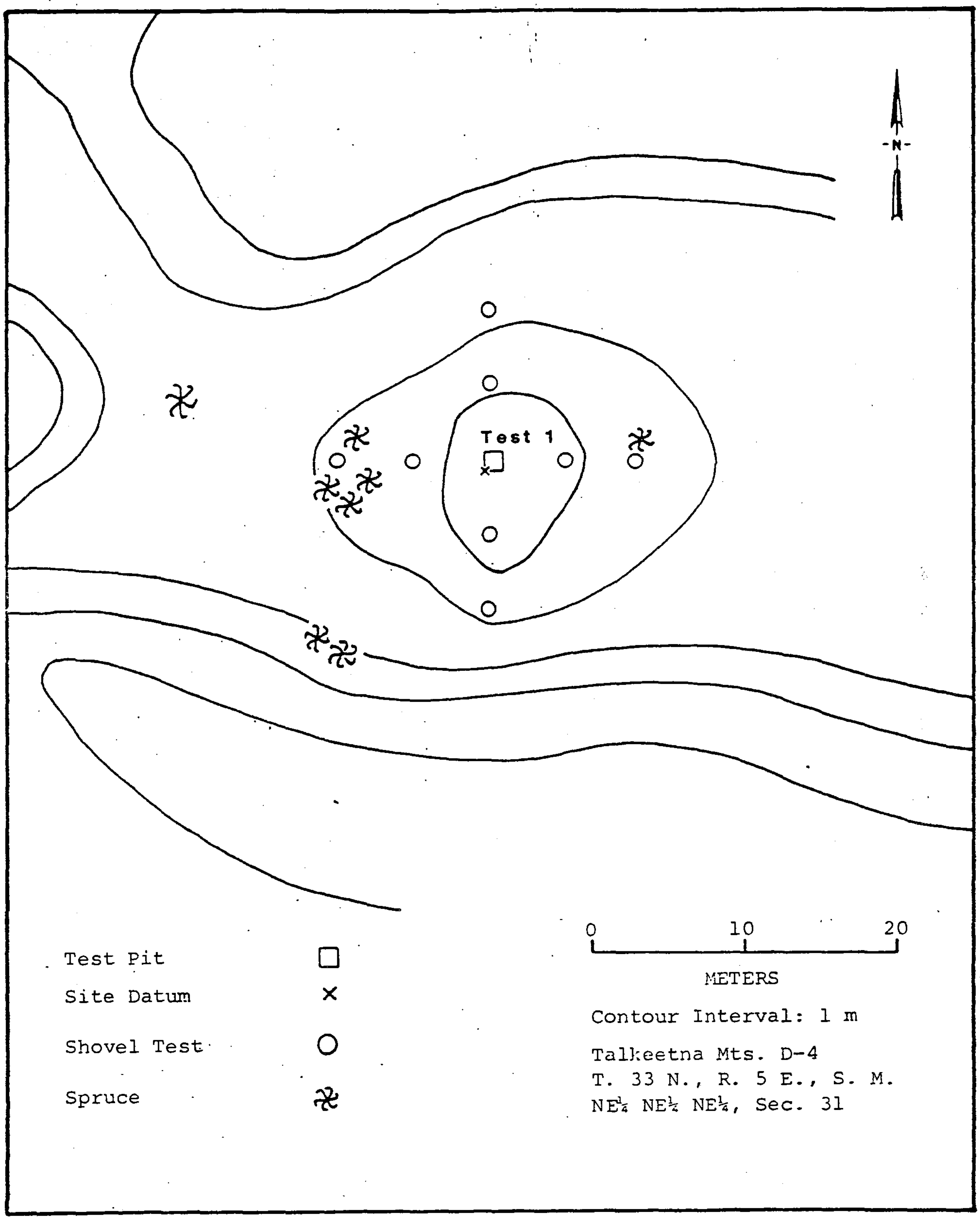


Figure 3.17. Site Map TLM 176.

AHRS Number TLM 177, Accession Number UA83-103

Area: Ca. 2.5 km East of Deadman Creek, Survey Locale 133
Area Map: Figure A.3; Survey Locale Map: Figure A.82
USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 427710 Northing 6967550

Latitude 62°49'55" N., Longitude 148°25'5" W.

T. 32 N., R. 5 E., Seward Meridian
Sec. 25, SW¼NE¼SW¼

Site Map: Figure 3.18

Setting: Situated at an elevation of ca. 640 m asl (2100 feet), TLM 177 is located along the southern edge of an east-west trending bedrock terrace, ca. 2.5 km east of the mouth of Deadman Creek. Overlooking a terrace approximately 15 m lower in altitude, the site is mantled with approximately 50 cm of glacial drift silt and tephra above the bedrock terrace edge. The bedrock terrace is aligned along a northwest-southeast axis ca. 30 m long. The east end curves north slightly before curving back along a north-south axis then disappearing into the landscape ca. 50 m east of test pit 1. Beyond the western terrace edge is a small drainage north-northwest - south-southeast ca. 5 m from test pit 1 that separates it from a small tongue of land 2 m lower in elevation. Terrain to the south abruptly descends down to the Susitna River approximately 6 km due south. Along the descending slope (10 degree gradient) is a series of similar bedrock terraces. A freshwater stream that drains the upland glaciolacustrine plain and ca. 7 hectare lake ca. 2.5 km north of the site trends northeast-southwest, ultimately discharging into the Susitna River ca. 0.3 km east of the confluence of Deadman Creek. A ca. 3 hectare lake ca. 2 km north-northeast drains into the Susitna River approximately 2 km east of TLM 177. An open view of the lower terrace and the south valley wall of the Susitna River is available, but the Susitna River is below and out of view from TLM 177.

The view north is blocked by a gradually ascending slope. The view east is blocked by an open mixed hardwood forest consisting of predominantly white spruce interspersed with birch. Brush and herbaceous plants represented are dwarf birch, rose, willow, Labrador tea, blueberry, lowbush cranberry, fireweed, miniature dogwood, mosses and white lichen. In absence of the trees to the east, a view of the surrounding landscape would open. A cotton grass mesic muskeg community characterizes the next lower terrace south.

Reconnaissance Testing: Two gray chert artifacts, one of which was retouched, were recovered from a shovel test. The shovel test was expanded into a 40 cm by 40 cm test (test pit 1). A second chert chunk was found approximately 20 cm below surface in the glacial drift. This piece has probably been mixed into the drift and thus in secondary context. The terrace edge indicates that slumping of the stratigraphic mantle is ongoing and has probably disturbed part of the site downslope and displaced artifacts still present. Surface reconnaissance and systematic shovel tests 5 m and 10 m from the test pit resulted in no additional cultural material.

Collected Artifact Inventory:

Subsurface:

1 Gray chert flake
1 Gray chert chunk

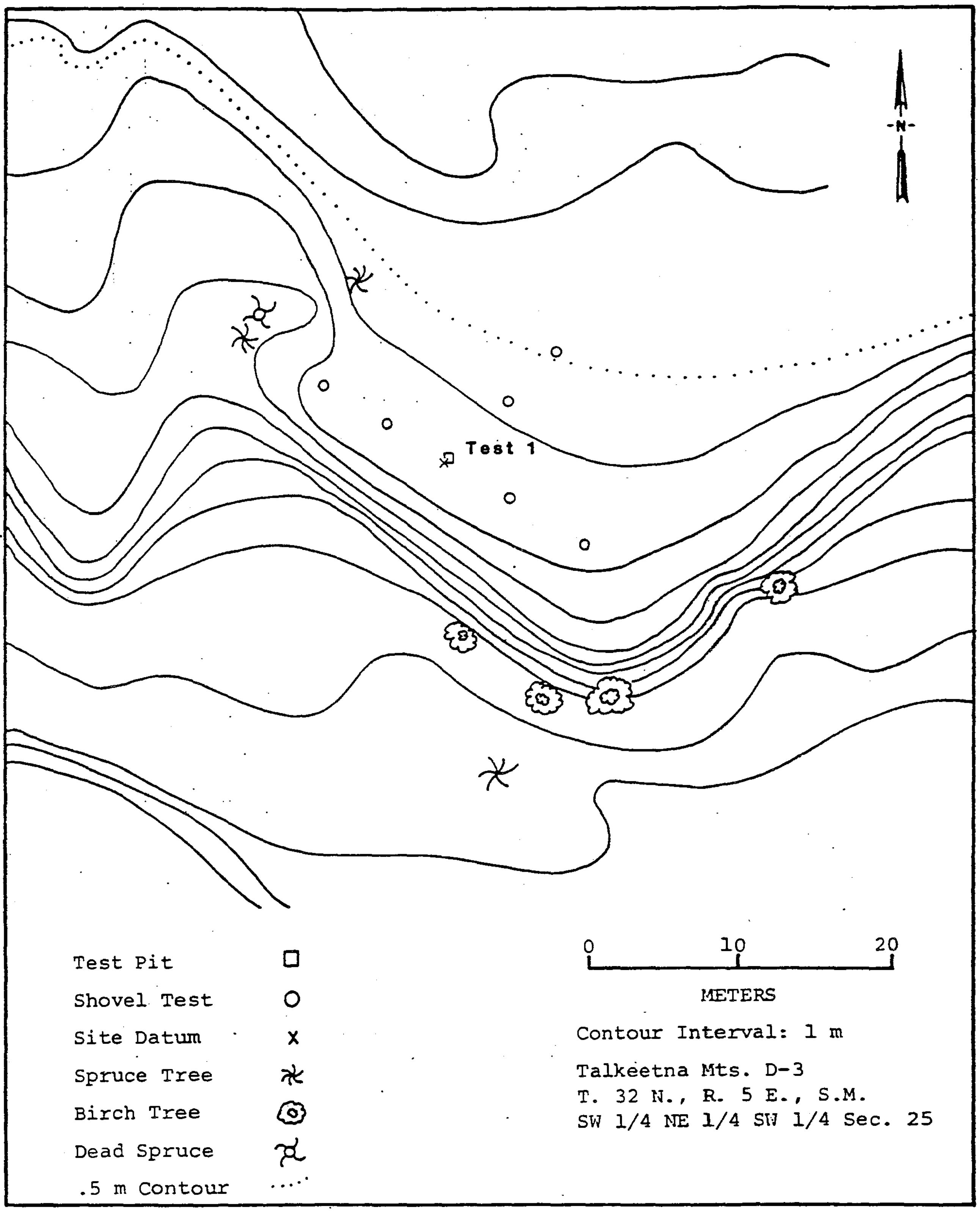


Figure 3.18. Site Map TLM 177.

AHRS Number TLM 178, Accession Number UA83-104

Area: Ca. 1.9 km Downriver from Mouth of Fog Creek, on Point Bar of Susitna River, Survey Locale 155

Area Map: Figure A.2; Survey Locale Map: Figure A.121

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 411850 Northing 6959900

Latitude 62°45'38" N., Longitude 148°43'30" W.

T. 31 N., R. 4 E., Seward Meridian

Sec. 21, SE¼NW¼SW¼

Site Map: Figure 3.19

Setting: TLM 178 is located at a major bend in the Susitna River approximately 1.9 km southwest of the mouth of Fog Creek. The site, consisting of the remains of a cabin and other historic features, lies at ca. 411 m asl (1350 feet) near the tip of a point bar on the north bank of the river. This gravel bar offers excellent river access to the low-lying, thickly-forested floodplain (not more than 2 m above present water level) in the site vicinity. Five hundred meters north of the site, the flat floodplain is truncated by a steep razorback ridge. To the northwest, however, the floodplain extends for approximately 2 km. To the west lies an abandoned silted-in river channel. On the opposite side of the river, particularly to the south and southeast of the site, there is a steep bluff disected by two small streams. The site vegetation is lowland spruce-hardwood forest, with the predominant vegetation being spruce, dwarf birch, alder, grasses and sphagnum moss. The area within approximately 10 m around the cabin has been cleared of many of the trees, leaving sawn stumps, and a number of tree falls. Approximately 70 m north of the site is another clearing that is approximately 50 m x 70 m in size. Because of the dense vegetation, visibility is restricted, with only a limited view of the gravel bar, river, and cut bank to the south, and the river bank to the east. The dense vegetation has been a factor in site destruction as a tree-fall appears to have caused the collapse of the cabin roof and walls. Moss, lichens and grasses have grown over much of the site as well

Reconnaissance Testing: The site consists of four surface features and a wolverine (Gulo gulo) burial. Feature 1 is a small (4 m x 5 m), one-room log cabin. The cabin is constructed primarily of hand-hewn spruce logs, which still retain the adze marks, and a few birch logs. The corner notching is "U"-shaped, cut on the down-facing side of the log. The notch rests on the next lower log, which has had little preparation for fitting. The door jambs are made from squared boards, probably milled lumber. These are attached to the logs by machined round steel nails. The cabin is collapsed inward by a large spruce which apparently fell across the roof. Presently a white spruce (approximately 8 m in height) is growing from the interior of the cabin.

Feature 2 is a large pit (4.5 m x 1.4 m, 40 cm deep). The pit is located adjacent to the northeast wall of the log cabin. Test pit 1 was placed in the bottom of pit, along the northwest wall. A partially complete, mostly articulated male wolverine skeleton (Feature 5, Figure 3.19) was recovered in test pit 1. The skeleton was partially covered, and partially surrounded by bark (probably spruce). The head was not recovered, and may not have been present. The presence of the bark, and the position of the skeleton relative to it, suggests that the skeleton may have been intentionally buried in "ceremonial" fashion. This "ceremonial" burial may indicate Athapaskan use of the cabin.

Feature 3 is a small pit (80 cm x 50 cm, 15 cm deep), that is located 5 m west of the log cabin. It appears to be very regular in shape, and carefully dug. It may be a cache pit or latrine.

Feature 4 is a dog sled. The sled is constructed with hand-hewn wood slats that are held together with wire and steel nails. The runners are "U"-shaped wooden slats. The sled is 100 cm x 50 cm in size. It is sitting near the edge of the river bank in an area of fallen timber about 5 m south of the log cabin.

Collected Artifact Inventory:

1 Steel nail

Collected Faunal Material Inventory:

1 Partial male wolverine (*Gulo gulo*) skeleton including:

1 Sacrum
7 Lumbar vertebrae
14 Thoracic vertebrae
4 Cervical vertebrae
2 Caudal vertebrae
1 Epistropheus
1 Metacarpal
2 Phalanges
1 Calcaneus
1 Sternum
1 Baculum
1 Humerus
1 Radius
1 Ulna
1 Scapula
1 Right pelvis
1 Left pelvis
23 Ribs

Miscellaneous Collected Material:

Bark fragments (probably spruce)

Artifacts Observed, Not Collected:

Steel nails
Cut logs
Dog sled
Steel wire

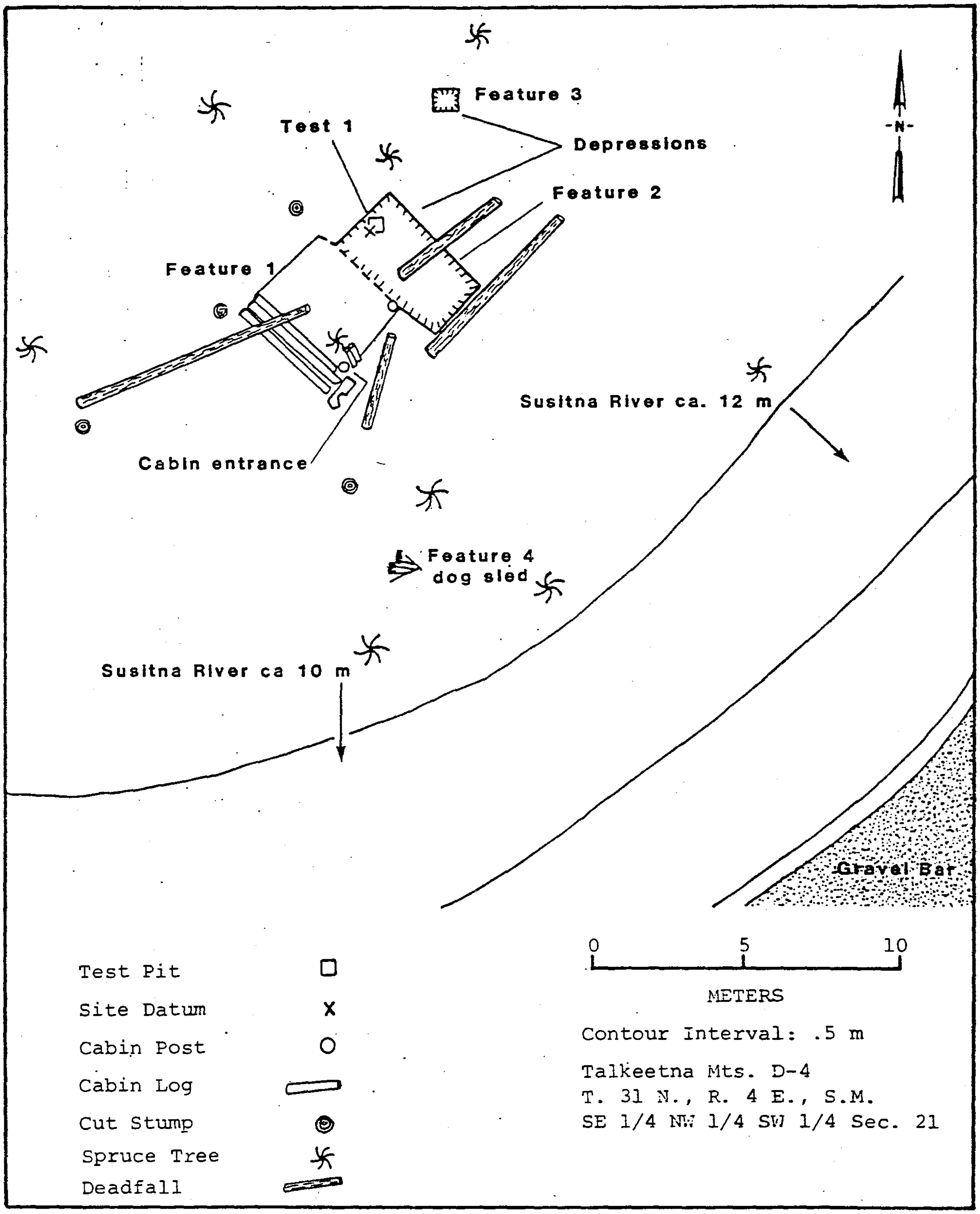


Figure 3.19. Site Map TLM 178.

AHRS Number TLM 179, Accession Number UA83-103

Area: Ca. 7.4 km South of the Confluence of Kosina Creek and the Susitna River, Survey Locale 129

Area Map: Figure A.7; Survey Locale Map: Figure A.79

USGS Map: Talkeetna Mts. C-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 449950 Northing 6954700

Latitude 62°43'11" N., Longitude 147°58'37" W.

T. 30 N., R. 8 E., Seward Meridian

Sec. 4, SW¼SW¼NW¼

Site Map: Figure 3.20

Setting: TLM 179 is situated at an elevation of ca. 793 m asl (2600 feet) on the rim of a discrete ridge top approximately 1.3 km southwest of the confluence of an unnamed creek and Kosina Creek. From the mouth of Kosina Creek TLM 179 is ca. 7.4 km directly south. The valley wall of the unnamed creek descends north along a 10 degree gradient below the slightly less than 1 degree sloping crest where the site rests. A small saddle trending north-south separates TLM 179 from a similar geologic feature approximately 50 m west. Northward approximately 31 m (100 feet) lower in elevation is another terrace. Massive downcutting is evident by both the terrace below and steep cut banks that are upstream and visible northwest from the site. The unnamed creek trends east-west and is ca. 1 m wide below the site. Above the site at a higher elevation in a south-southwest direction is a large flat plateau approximately 100 m wide between the ampitheater-shaped valley rim on the east and the descending creek valley slope to the west. The drainage creek bifurcates west of the mentioned plateau ca. 1 km upstream from the confluence. One branch trends north-south which appears to be dry. However, the other branch, trending east-west is the active channel exhibiting slightly higher magnitude of downcutting plus a longer river cut channel that extends west approximately 3.5 km. The glacio-lacustrine plain to the west encompasses the river catchment.

There is a series of six lakes on the north side of the unnamed drainage and one isolated lake, 500 m directly west, slightly over 1 hectare in size. The lake to the west has an outlet stream that discharges into the unnamed drainage mentioned above. The series of six lakes is situated approximately 800 m northwest of TLM 179, the largest of which is approximately 3 hectares in size. Only the largest lake is visible from the site. From aerial reconnaissance, the lakes appear not to drain into the unnamed creek, but do appear to be receding. A commanding view of the surrounding terrain is available except south southwest which is blocked by the slightly higher plateau. TLM 186 can easily be seen to the north across the drainage on a lower knoll; Mt. Watana is easily seen to the west. The opposite valley wall and a series of knolls is visible to the north, Gilbert Creek, Kosina Creek and the bifurcated point between Gilbert and Kosina Creeks is in view to the south. Also south and southwest, the ampitheater-shaped valley rim is clearly visible. On site vegetations include dwarf birch, alder clusters, bearberry, crowberry, white and yellow lichens, blueberry, dwarf willow, mosses and grasses on the northern tip of the site rim. Approximately 50% of the site surface has been wind scoured.

Reconnaissance Testing: TLM 179 consists of two surface artifacts. A large black basalt flake and a light gray chert flake. One 40 cm x 40 cm test pit (test pit 1) was placed upslope from the wind scoured surface to reveal stratigraphy. No additional artifacts were recovered in test pit 1. Four shovel tests were systematically placed and carefully examined but were sterile.

Collected Artifact Inventory:

Surface:

1 Basalt flake
1 Light gray chert flake

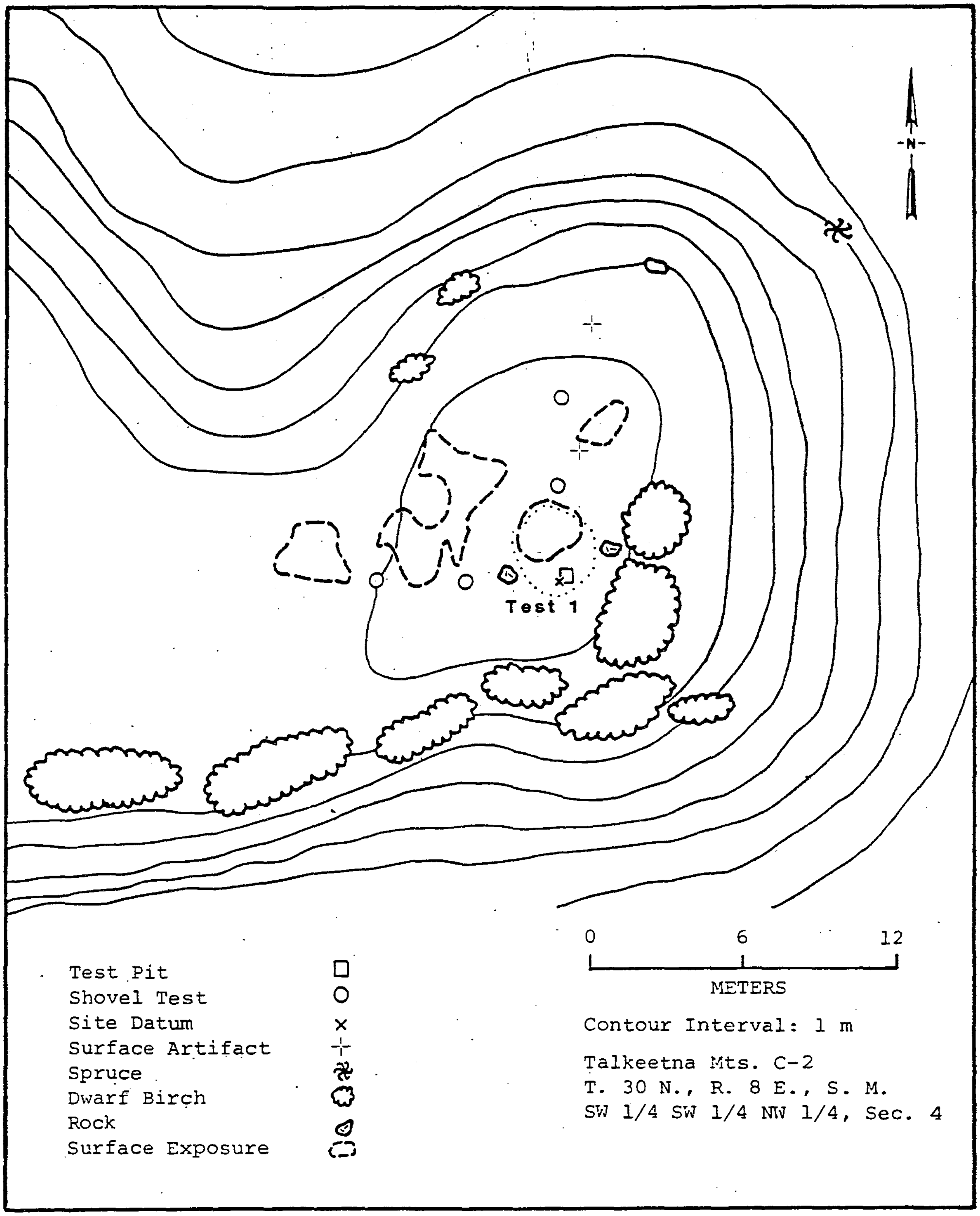


Figure 3.20. Site Map TLM 179.

AHRS Number TLM 180, Accession Number UA83-106

Area: Ca. 1.7 km Northeast of the Confluence at Tsusena Creek and Susitna River, Survey Locale 153

Area Map: Figure A.2; Survey Locale Map: Figure A.118

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 419230 Northing 6967790

Latitude 62°44'58" N., Longitude 148°35'05" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 30, SE¼NW¼SE¼

Site Map: Figure 3.21

Setting: The site is located on the top of a knoll at an elevation of ca. 549 m asl (1800 feet). It is approximately 300 m east of Tsusena Creek and about 1.7 km northeast of the confluence at Tsusena Creek and Susitna River. The knoll is one of many in an area dotted with kames. To the west of the site at approximately 75 m lies a prominent ridge that runs along the east bank of Tsusena Creek. The ridge has a sharp narrow crest and is probably an esker formation which is heavily used by contemporary game as evidenced by the deeply incised game trail. South of the knoll at ca. 150 m is a small lake. The site itself is situated just off the crest of the knoll on the southern sloping side. The knoll is oblong in shape and runs for ca. 50 m in an east to west direction and 20 m in a north to south direction. Visibility from the site area is minimal because of the rugged local terrain and thick stands of spruce. The game trails along the esker ridge overlooking Tsusena Creek are visible from the site but the lake cannot be seen. The view in all directions is obstructed by current vegetation. The vegetation in the local area is generally characterized as lowland spruce-hardwood. Vegetation on the site include black spruce, white spruce, birch, dwarf birch, dwarf willow, blueberry, Labrador tea, mosses, and lichens. The vegetation in surrounding areas is virtually identical to that found on the site with the exception of thicker stands of dwarf birch in areas off of knolls.

Reconnaissance Testing: The site was initially discovered in a shovel test. This shovel test was expanded into a 40 cm x 40 cm test pit (test pit 1). In addition, nine shovel tests were excavated on the knoll to determine the size of the site area. Artifactual material was only found in test pit 1. Over 600 argillite flakes, 3 chert microblades and 1 argillite microblade were recovered from test pit 1 (UA83-106-15, UA83-106-16, UA83-106-17, UA83-106-90, Figure 3.65 f, g, h, i). All artifacts were found in the contact zone between the gray sandy silt and the glacial drift. No artifacts were found on the surface.

Collected Artifact Inventory:

Subsurface:

609 Argillite flakes
3 Gray chert microblades
1 Argillite microblade

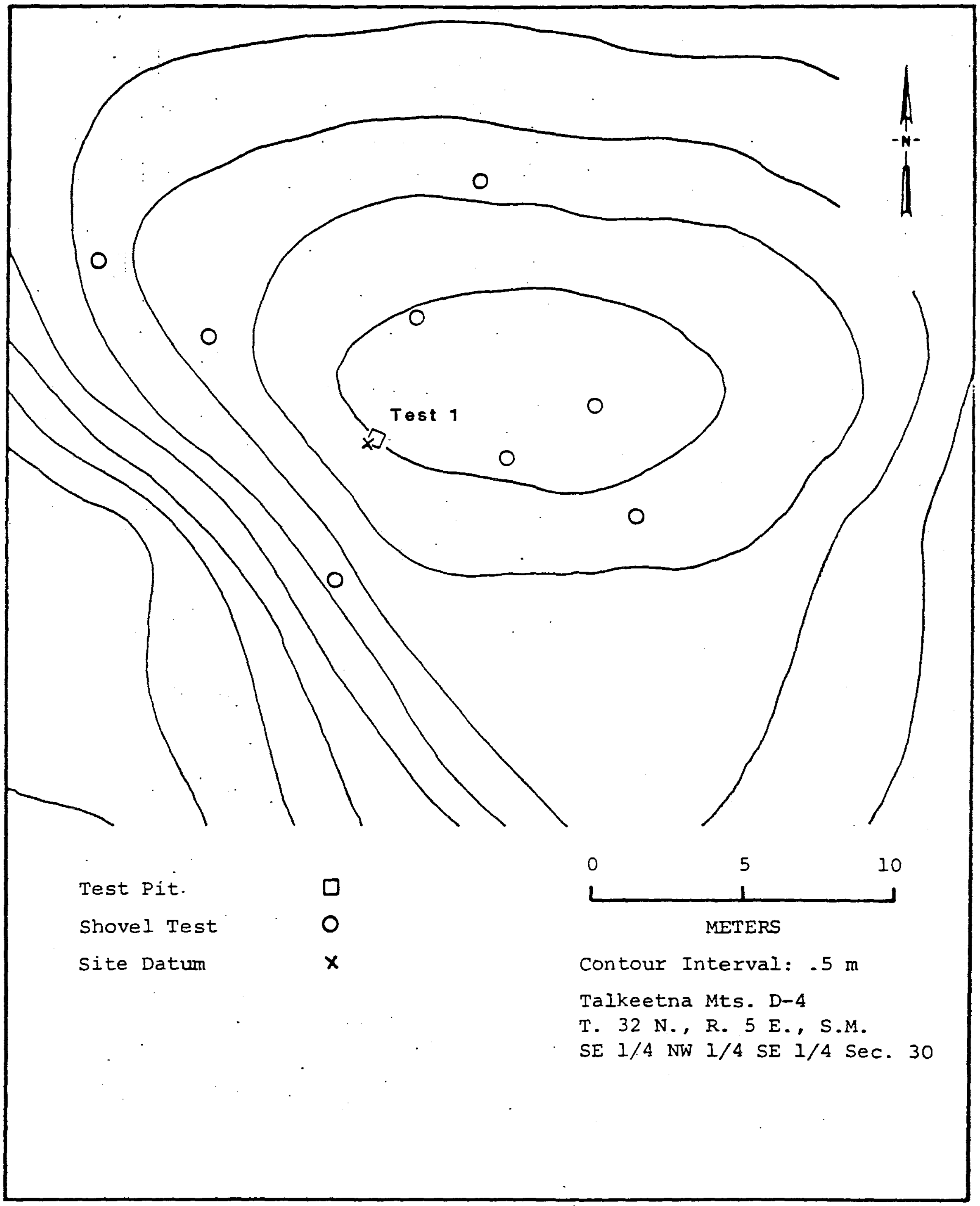


Figure 3.21. Site Map TLM 180.

AHRS Number TLM 181, Accession Number UA83-107

Area: Ca. 4 km North-northeast of the Confluence of Deadman Creek with the Susitna River, Survey Locale 150

Area Map: Figure A.3; Survey Locale Map: Figure A.114

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 426300 Northing 6970900

Latitude 62°51'45" N., Longitude 148°26'45" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 13, NW¼NW¼SW¼

Site Map: Figure 3.22

Setting: TLM 181 is located at ca. 732 m asl (2400 feet) at the southeast side of a small knoll ca. 200 m west of Deadman Creek and approximately 4 km north-northeast of the creek's confluence with the Susitna River. A lake extending ca. 700 m north of TLM 181 but is not visible from the site. The site is located on a 5 to 15 degree slope on the southeast side of a knoll and is approximately 10 m below the summit. The site is about 80 m higher than Deadman Creek as it flows southward to the east. The knoll slopes abruptly (ca. 30 degrees) down to the east and west but more gradually to the northwest and south. The knoll may be considered to be in the saddle of two higher kame features to the north and south. The area to the west of TLM 181 consists of north-south trending kame ridges and kettle-type lakes and ponds. The view to the north and northwest is obstructed by the knoll on which the site sits, but an unobstructed view is available to the east showing Deadman Creek and the plateau above the Deadman Creek floodplain. To the south, Deadman Creek is visible as is TLM 170 on another kame ridge about 500 m distant. TLM 193 is located about 150 m to the northwest, but is not visible from TLM 181 because of the shoulder of the knoll on which TLM 181 is located. TLM 181 is heavily vegetated with white and black spruce, dwarf birch, blueberry, bearberry, Labrador tea, mosses, and lichens. East of the site, towards Deadman Creek, the vegetation becomes more dense, consisting of willow thickets and black spruce. To the south, moist tundra appears in a drainage separating the site from TLM 170 some 500 m away.

Reconnaissance Testing: A single basalt flake, probably derived from a tan silty sand layer thought to be the Watana tephra, constitutes the cultural assemblage from the site. Six shovel tests to the north, west, and south did not reveal additional cultural material.

Collected Artifact Inventory:

Subsurface:

1 Basalt flake

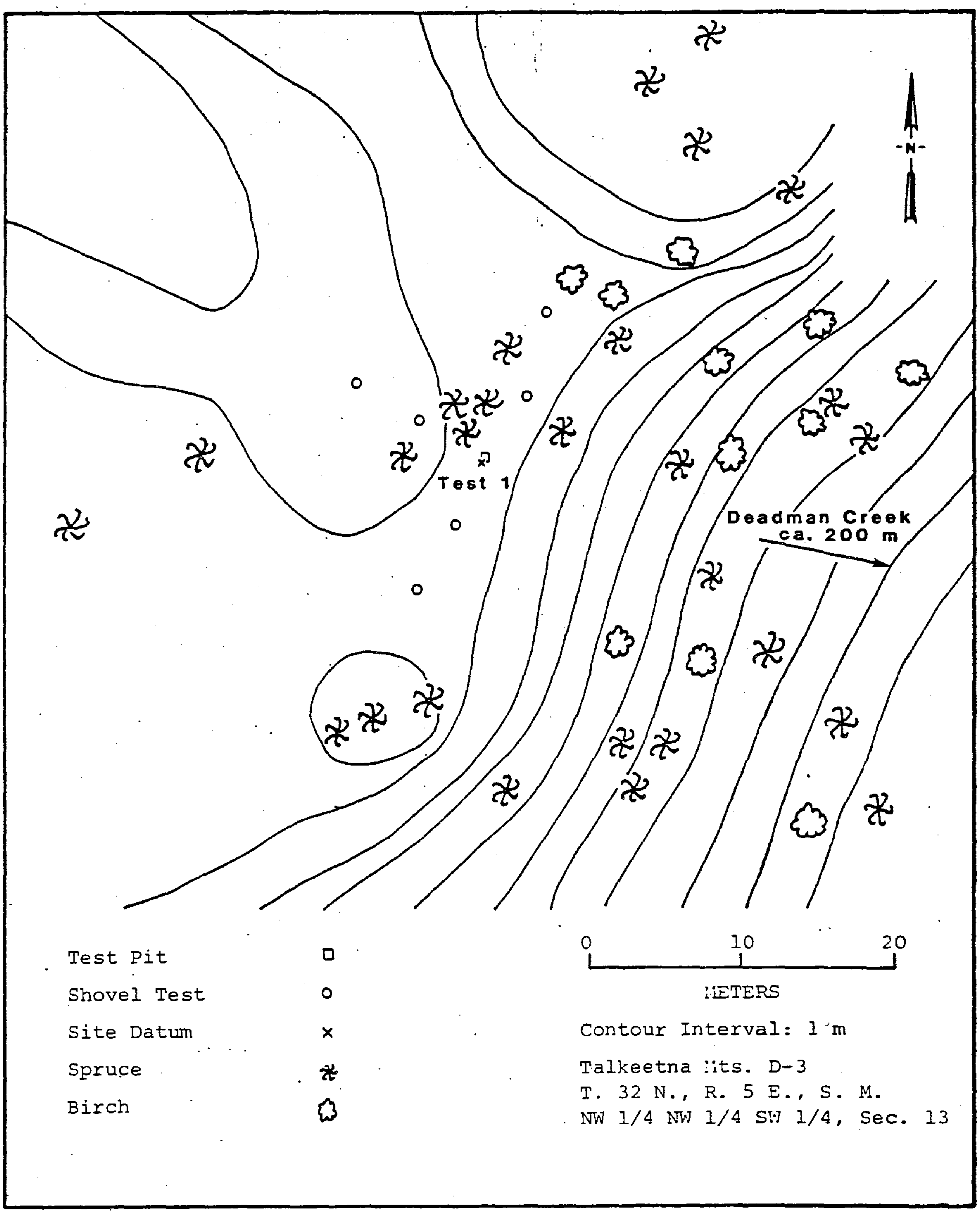


Figure 3.22. Site Map TLM 181.

AHRS Number TLM 182, Accession Number UA83-108

Area: East side of Kosina Creek ca. 5 km South of Confluence with Susitna River, Survey Locale 128

Area Map: Figure A.7; Location Map: Figure A.78

USGS Map: Talkeetna Mts. C-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 450650 Northing 6956610

Latitude 62°44'15" N., Longitude 147°57'49" W.

T. 31 N., R. 8 E., Seward Meridian

Sec. 33, SW¼NW¼NE¼

Site Map: Figure 3.23

Setting: TLM 182 is situated on the edge of a terrace above the east side of Kosina Creek approximately 5 km south of its confluence with the Susitna River. This fairly flat terrace is ca. 50 m north-south by 20 m east-west at approximately 655 m asl (2150 feet). The southern end of the terrace is defined by a bluff characterized by a cut bank which extends approximately 12 m at a ca. 40 degree slope from the terrace edge down to Kosina Creek. The view to the south overlooks a wide bend in Kosina Creek flowing north and curving to the west which forms a point bar situated west of the site. The site is situated on the western edge of the terrace which steeply slopes down to a lower river terrace formed by the point bar. Several relict channels are present on this lower terrace. The mouth of an unnamed upland drainage stream trending east-west is ca. 700 m north of TLM 182. The terrain to the east and northeast of the site is low and boggy for approximately 100 m before ascending to higher terraces and knolls which form the valley rim. The view to the west is limited to the high terraces and western slopes of Kosina Creek. Rugged foothills ca. 13 km to the north are partly obscured by lowland spruce stands. Although not visible from the site, TLM 179 and TLM 186 are ca. 2 km upstream to the south. Alder, paper birch, and white spruce are found along the terrace edge. The top of the terrace is densely vegetated with small spruce, low dwarf birch, a few alder thickets, sparse willows, with a dense mat of Labrador tea, blueberry, low bush cranberry, crowberry, wild rose, grass, white lichen and spaghnum moss.

Reconnaissance Testing: No surface artifacts were observed at TLM 182. One chert flake with a pot lid fracture was recovered in a shovel test which was expanded into a 40 cm x 40 cm test pit (test pit 1), revealing three additional chert flakes lying within the Oshetna tephra. Three of the four flakes articulated with one another; all four showed evidence of thermal fracturing. A second test pit (test pit 2) excavated on the southern end of the terrace and the 19 shovel tests dug previously provided no additional cultural material.

Collected Artifact Inventory:

Subsurface:

4 Chert flakes

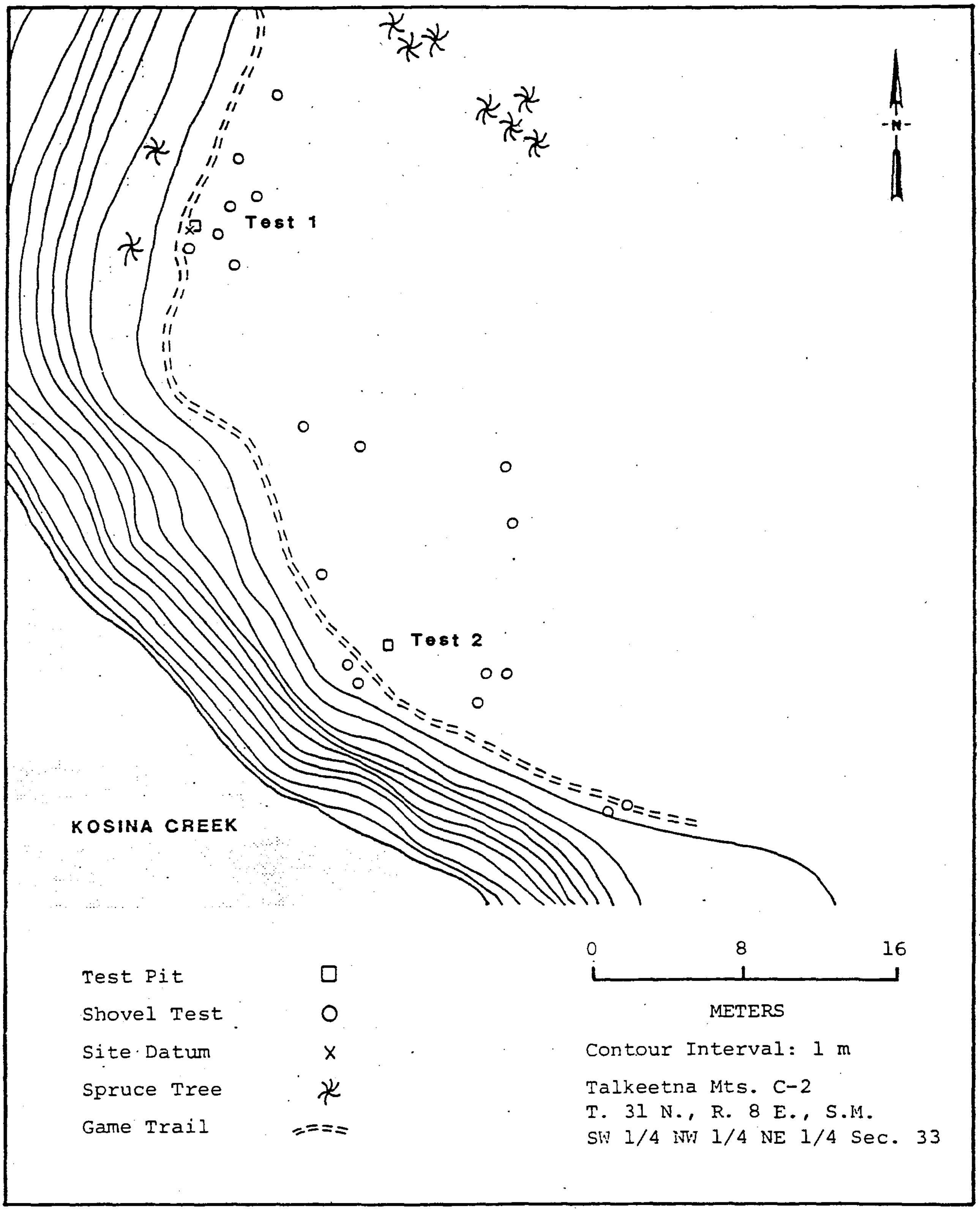


Figure 3.23. Site Map TLM 182.

AHRS Number TLM 183, Accession Number UA83-109

Area: Ca. 5.5 km West-southwest of Vee Canyon and 500 m South of the Susitna River, Survey Locale 122

Area Map: Figure A.7; Survey Locale Map: Figure A.72

USGS Map: Talkeetna Mts. C-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 467700 Northing 6951600

Latitude 62°41'41" N., Longitude 147°37'45" W.

T. 30 N., R. 10 E., Seward Meridian

Sec. 17, SW¼NE¼NW¼

Site Map: Figure 3.24

Setting: TLM 183 is located on a ridge ca. 5.5 km west-southwest of Vee Canyon. The ridge is approximately 500 m south of the Susitna River and ca. 2 km southeast of the stream draining the region east of Clarence Lake. Another steep drainage is located approximately 500 m to the east of the site. The site is on a narrow 20 m wide ridge paralleling the Susitna River at an elevation of approximately 762 m asl (2500 feet). The ridge is situated perpendicular between two other ridges which extend north towards the Susitna River. The ridge to the west of the site is approximately 20 m higher than the one on which the site is located. A small grassy depression, ca. 50 m east-west by 10 m north-south, is located immediately south of the site and is 10 m below the level of the site. From the site the terrain slopes north at approximately 30 degrees toward the Susitna River allowing an unobstructed view of the river flowing from east to west. South of the site, the terrain generally rises sharply to a height of 1090 m asl (3575 feet). Vegetation on the site consists of dwarf birch, spruce, Labrador tea, mosses, and lichens. The surrounding vegetation is similar except for a higher density of spruce trees to the north and south.

Reconnaissance Testing: One obsidian flake was located on the surface of a game trail following the ridge top. A 40 cm x 40 cm test pit (test 1) excavated near the surface find produced three basalt flakes from between the Watana and Oshetna tephra. Eight additional subsurface tests placed around test 1 did not reveal any additional cultural material.

Collected Artifact Inventory:

Surface:

1 Obsidian flake

Subsurface:

3 Basalt flakes

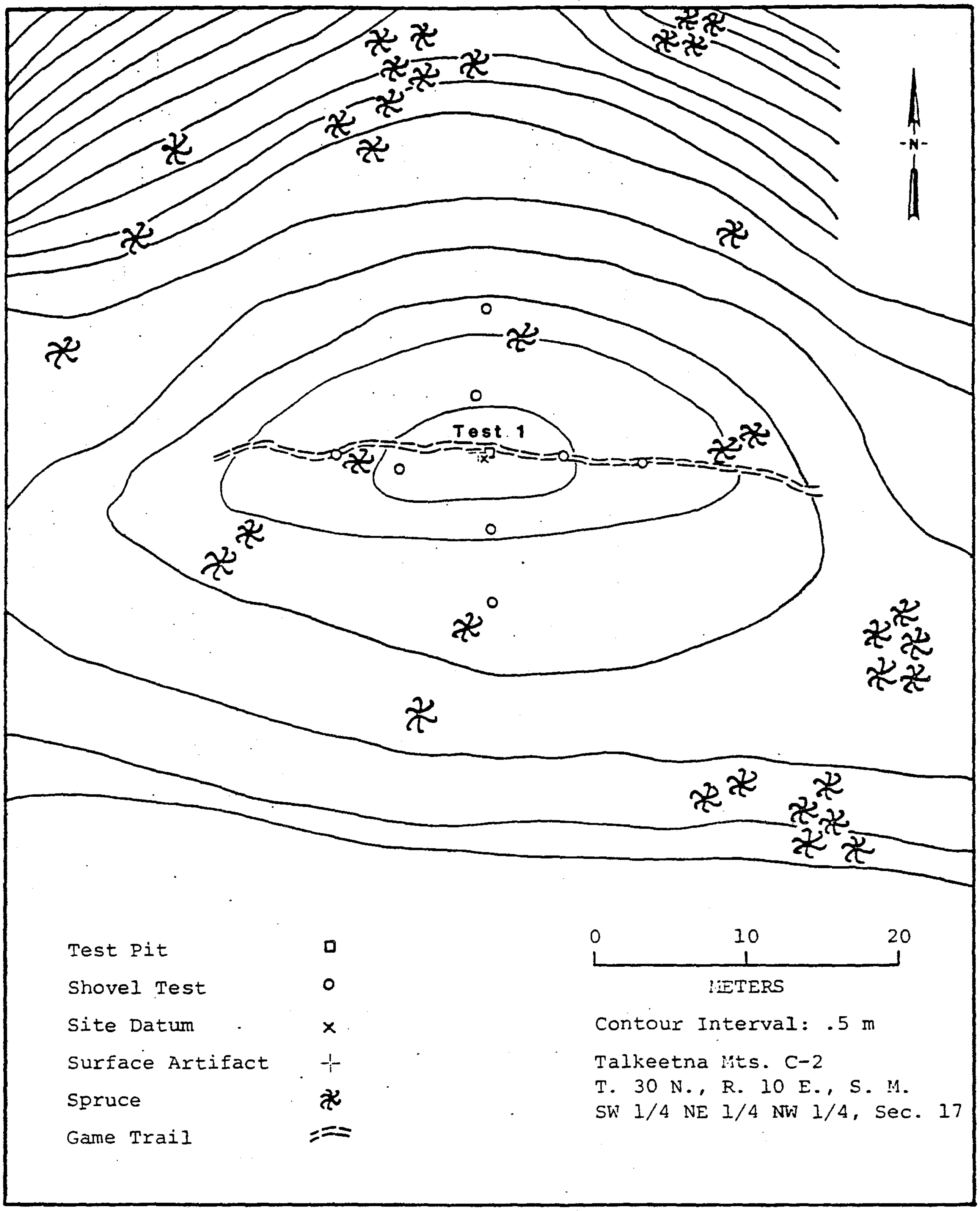


Figure 3.24. Site Map TLM 183.

AHRS Number TLM 184, Accession Number UA83-110

Area: Ca. 2.2 km North-northeast of the Confluence of Watana Creek with the Susitna River, Survey Locale 138

Area Map: Figure A.3; Survey Locale Map: Figure A.91

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 436300 Northing 6969300

Latitude 62°50'59" N., Longitude 148°14'58" W.

T. 32 N., R. 6 E., Seward Meridian

Sec. 24, SE¼SE¼NW¼

Site Map: Figure 3.25

Setting: TLM 184 is located on a knoll ca. 2.2 km north-northeast of the confluence of Watana Creek with the Susitna River. The knoll is ca. 50 m wide and is at an elevation of approximately 600 m asl (2000 feet). The site is located on the south half of the knoll overlooking black spruce bogs and adjacent knolls. The knoll is situated ca. 1.3 km west of Watana Creek in a region of spruce bogs with widely separated kame knolls. Knolls of similar elevation as the one on which TLM 184 is situated occur to the east, south and southwest of the site. A small pond of less than 1 hectare in extent is located out of view some 300 m southeast of the site. The knoll with the site has an open vegetative cover of scattered spruce and birch trees. The ground cover consists of mosses, lichens, dwarf birch, Labrador tea, and blueberries. Moist spruce bogs of black spruce characterize the intervening regions between the higher knolls which share the open, dry vegetation of TLM 184.

Reconnaissance Testing: TLM 184 was represented by lithics, one probable hearth and one possible hearth found below the ground surface across an area of 20 m east-west and ca. 13 m north-south. Test pit 1 yielded numerous argillite and chert flakes, most from the Sod/Devil contact and the remainder from the Devil and Watana tephras. Test pit 2, located 10 m to the west of test pit 1, produced flakes from the Sod/Devil contact and the Watana tephra. The upper portion of the Watana tephra contained the remnants of a possible hearth, which consisted of burnt and unburnt bone fragments, flakes and charcoal fragments. Test pit 3, located 10 m west of test pit 2, showed evidence of a possible hearth in the Watana tephra, which consisted of thermally altered rocks and scattered charcoal fragments. Test pit 4, approximately 13 m south of test pit 2, was placed in ground exposed by a toppled spruce tree. Chert and argillite flakes were found in the Watana horizons of this test. Seven shovel tests initiated to determine the extent of the site were sterile.

Collected Artifact Inventory:

Surface:

Test Pit 4:

1 Argillite flake
1 White chert flake

Subsurface:

Test Pit 1:

108 Argillite flakes
2 Black chert flakes, 1 retouched

Test Pit 2:

311 Burnt and unburnt bone fragments
5 Argillite flakes
1 Quartzite flake
2 Basalt flakes
1 Gray chert flake

Test Pit 3:

3 Thermally altered rocks
1 Argillite flake

Test Pit 4:

1 Argillite flake
1 Black chert flake

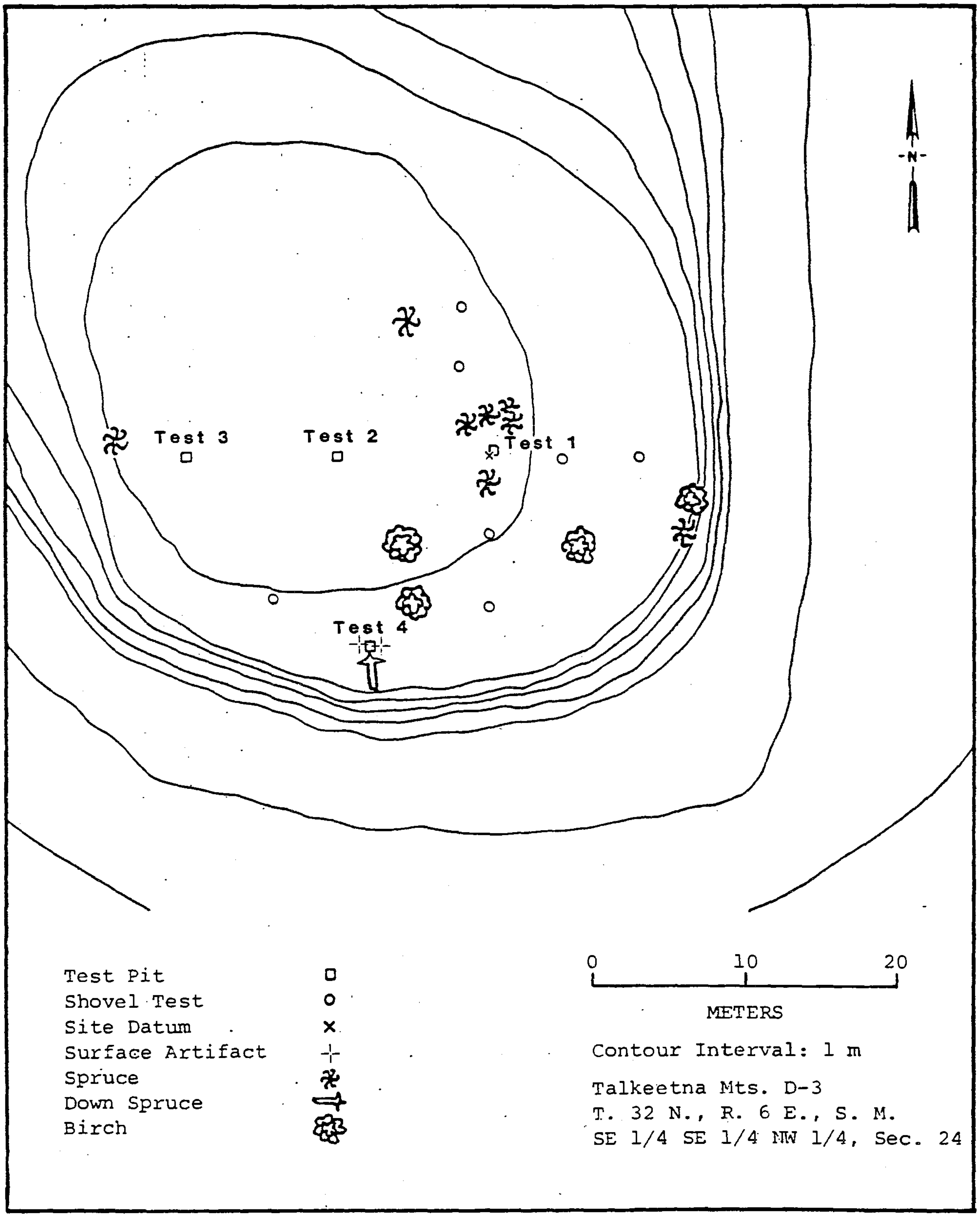


Figure 3.25. Site Map TLM 184.

AHRS Number TLM 185, Accession Number UA83-111

Area: Ca. 1.8 km South of the Oshetna and Susitna River Confluence, Survey Locale 124 (Locus A)

Area Map: Figure A.8; Survey Locale Map: Figure A.74

USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 480220 Northing 6943600

Latitude 62°37'27" N., Longitude 147°23'06" W.

T. 29 N., R. 11 E., Seward Meridian
Sec. 10, NW¼NW¼NW¼

Site Map: Figure 3.26

Setting: TLM 185 locus A is located on a ridge overlooking the Oshetna River at an elevation of ca. 762 m asl (2500 feet). The site is on the west bank of the Oshetna River approximately 90 m above the valley floor and about 1.5 km southwest of the Oshetna and Susitna River confluence. The site is positioned on a slight rise within the ridge which runs parallel to the Oshetna River. The ridge gradually slopes upward towards the north. Visibility in that direction is blocked by the rising ridge. To the south, the ridge drops in elevation but continues to parallel the valley floor. A small lake approximately 2 hectares in size is just out of view from the site at a distance of 1 km to the northwest. The view from the site area to the east affords an overlook of the Oshetna River, its valley, and the eastern bank. To the south and to the west the valley opens into a panoramic view of the high tundra for a distance of over 10 km. The vegetation in the site area is generally characterized as upland spruce-hardwood. Species found on the site area include scattered stands of spruce, dwarf birch, dwarf willow, Labrador tea, fireweed, lowbush cranberry, blueberry, some lichens and grasses. The vegetation in the surrounding area is the same as that found on the site, except that the spruce stands are thicker on the valley floor. Additionally to the west of the site, a dried pond contains a muskeg bog and grasses.

Reconnaissance Testing: A single chert flake was found on the surface of the ground at the site of an exposure. A 40 cm x 40 cm test pit (test pit 1) and eight shovel tests were excavated in the vicinity of the surface artifact and all produced no artifacts.

Collected Artifact Inventory:

Surface:

1 Chert flake

AHRS Number TLM 185, Accession Number UA83-111

Area: Ca. 1.8 km South of the Oshetna and Susitna River Confluence, Survey Locale 124 (Locus B)
Area Map: Figure A.8; Survey Locale Map: Figure A.74
USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 480200 Northing 6943610

Latitude 62°37'28" N., Longitude 147°23'04" W.

T. 29 N., R. 11 E., Seward Meridian
Sec. 10, NW¼NW¼NW¼

Site Map: Figure 3.27

Setting: TLM 185 locus B is located on a ridge overlooking the Oshetna River to the east at an elevation of approximately 777 m asl (2550 feet). The site is located 1.5 km from the Oshetna and Susitna River confluence. It is situated on a flat section of an ascending ridge. The flat site area is approximately 40 m in a northeast to southwest direction and 30 m in a northwest to southeast direction. TLM 185 locus B is located on the same ridge with TLM 185 locus A, but positioned approximately 45 m to the north on a higher portion of the ridge. The site itself sits on a flat area of the ridge about 40 m long on the northeast to southwest axis and 20 m wide on the northwest to southeast axis. The view from the site is very similar to the view afforded from TLM 185 locus A. The Oshetna River valley and the upland tundra are visible when looking eastward and southward from the site. To the west and northwest the view is composed of rolling upland tundra. The visibility to the north is obscured by the gently rising ridge on which the site is situated. The vegetation in the site area is characterized as upland spruce-hardwood. Floral growth in the site area is composed of scattered stands of spruce, dwarf birch, dwarf willow, lowbush cranberry, blueberry, Labrador tea, and lichens. The vegetation in the surrounding area is similar to that found on the site, except heavier stands of spruce in the low-lying valley floor and a muskeg bog in the upland marshes to the west of the site.

Reconnaissance Testing: A lithic scatter and a side notched point (UA83-111-1, Figure 3.66a) were found exposed on the surface of a wind deflated area on the southeast margin of the site on the slope facing the Oshetna River. Bone chips were also found on the site surface but appear to be of recent origin. Six shovel tests and a single 40 cm x 40 cm test pit (test pit 1) were excavated to determine the spatial extent of the site and vertical provenience of cultural material. Three basalt flakes were found in test pit 1, all were recovered from a silty sand matrix sitting upon an oxidized sandy matrix. No artifacts were recovered from the shovel tests.

Collected Artifact Inventory:

Surface:

1 Chert side notched point
1 Chert flake
1 Basalt flake

Subsurface:

3 Basalt flakes

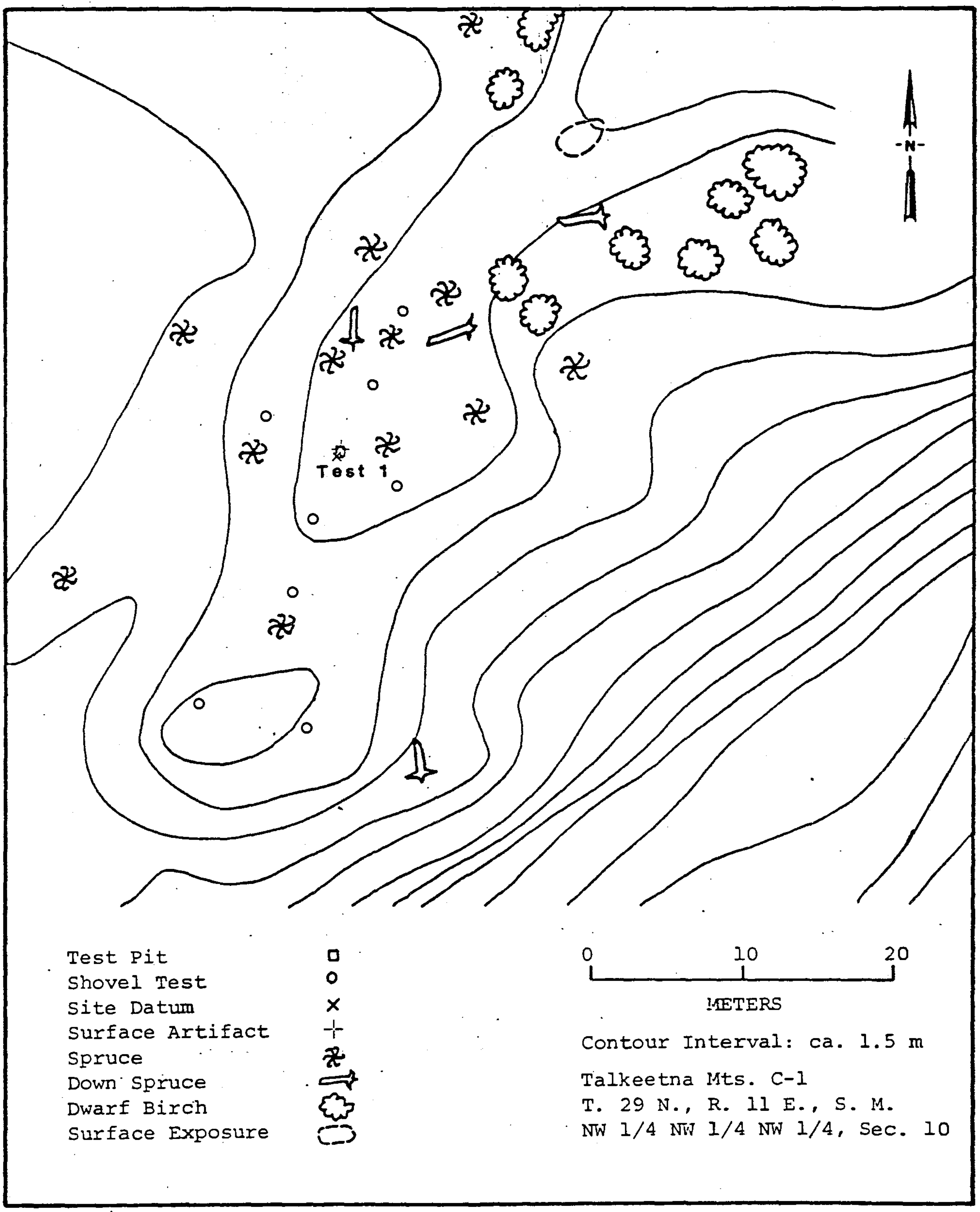


Figure 3.26. Site Map TLM 185, Locus A.

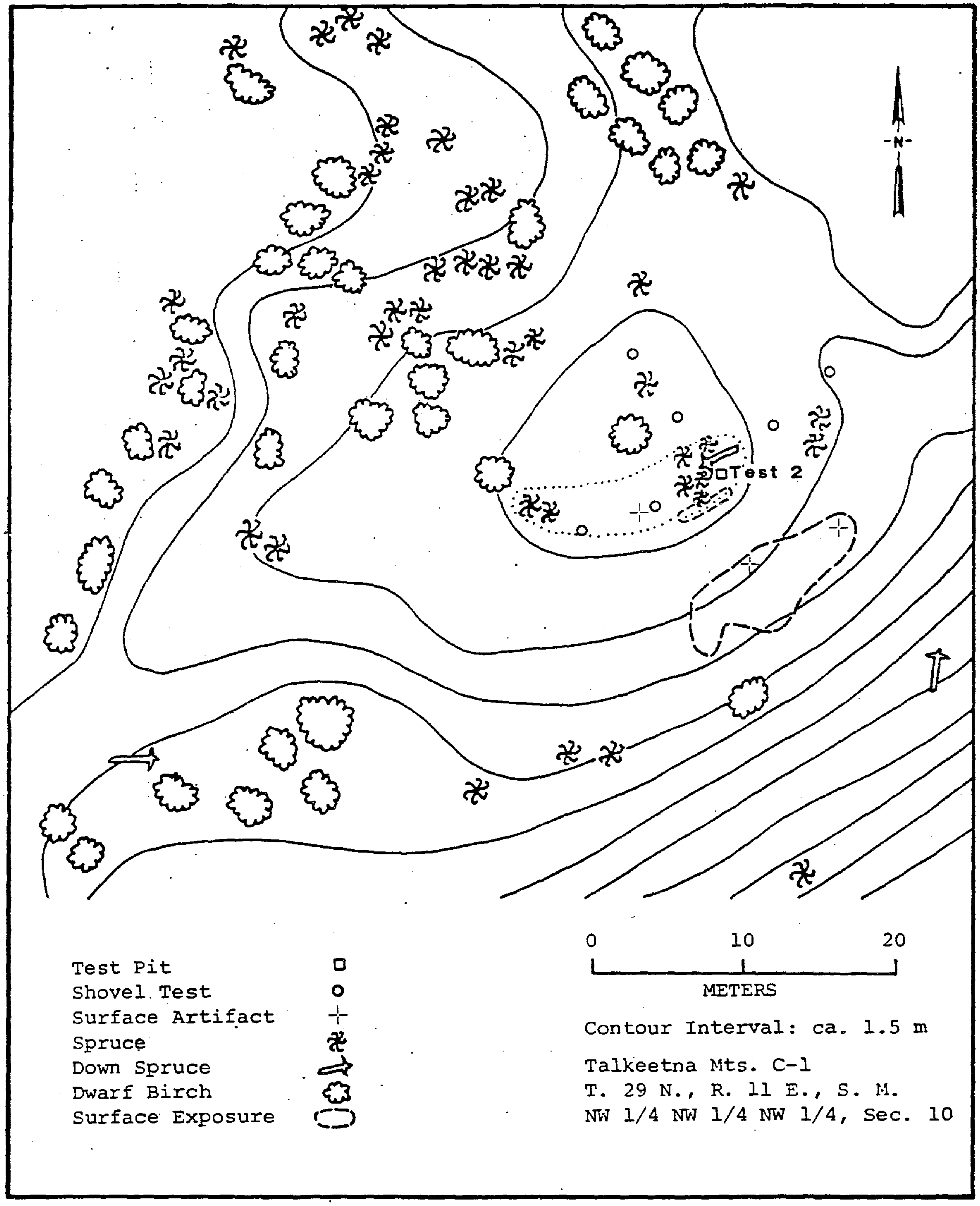


Figure 3.27. Site Map TLM 185, Locus B.

AHRS Number TLM 186, Accession Number UA83-112

Area: West Side of Kosina Creek ca. 1 km North of the Confluence with Gilbert Creek, Survey Locale 129

Area Map: Figure A.7; Survey Locale Map: Figure A.77

USGS Map: Talkeetna Mts. C-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 450050 Northing 6954990

Latitude 62°43'21" N., Longitude 147°58'30" W.

T. 30 N., R. 8 E., Seward Meridian

Sec. 4, SE¼NW¼NW¼

Site Map: Figure 3.28

Setting: TLM 186 is located on a discrete elongated knoll ca. 1 km northwest of the confluence of Kosina Creek with Gilbert Creek at an elevation of ca. 730 m asl (2400 feet). The northwest-southeast trending knoll is approximately 30 m long and 20 m wide. It has a prominent south-facing, 7 to 8 degree slope approximately 30 m above the unnamed east-west drainage to the south. The junction of this drainage and Kosina Creek is ca. 350 m southeast of the site. The discontinuous knoll descends north along a 4 degree slope for 10 m, then ascends up to a series of higher knolls approximately 12 m above the site. Visibility to the north is abruptly obstructed by the higher series of knolls. There is a clear view of TLM 179 across the unnamed drainage ca. 350 m to the south. The higher peaks of the Talkeetna Mts. are visible located ca. 24 km to the south. Mt. Watana is visible to the west, and the eastern valley wall of Kosina Creek is clearly visible. There are a series of freshwater lakes located to the northwest, west, and southwest of the site which vary in size. These lakes are in close proximity, but are not visible from the site. There are a series of six lakes clustered together approximately 800 m to the northwest. The largest of this cluster measures ca. 2.5 hectares. Another lake is located ca. 100 m west-southwest of the site measuring approximately 1 hectare.

This lake is drained by the unnamed drainage below the site. Another series of five lakes are located ca. 1.7 km south-southwest of the site. The largest of these lakes measures 1 hectare. The top of the knoll is relatively flat with a game trail along the crest. On its southwest slope is an exposed erosion surface. Surface vegetation includes scattered white spruce with a ground cover of dwarf birch, lowbush cranberry, Labrador tea, blueberry and lichen. Birch is scattered along the south-facing slopes. The area surrounding the site is relatively well drained.

Reconnaissance Testing: The site consists of both surface and subsurface cultural material. An obsidian biface (UA83-112-1; Figure 3.66b) was recovered from the surface of the game trail. Five basalt flakes were found on the exposed eroded slope on the southwest end of the knoll. A 40 cm x 40 cm test (test pit 1) was placed over the area where the obsidian biface was recovered. One obsidian fragment was recovered from the lichen-spruce needle mat in test pit 1. Four shovel tests were placed on the level area of the site to the east and west, all with negative results.

Collected Artifact Inventory:

Surface:

1 Obsidian biface
5 Basalt flakes

Subsurface:

1 Obsidian fragment

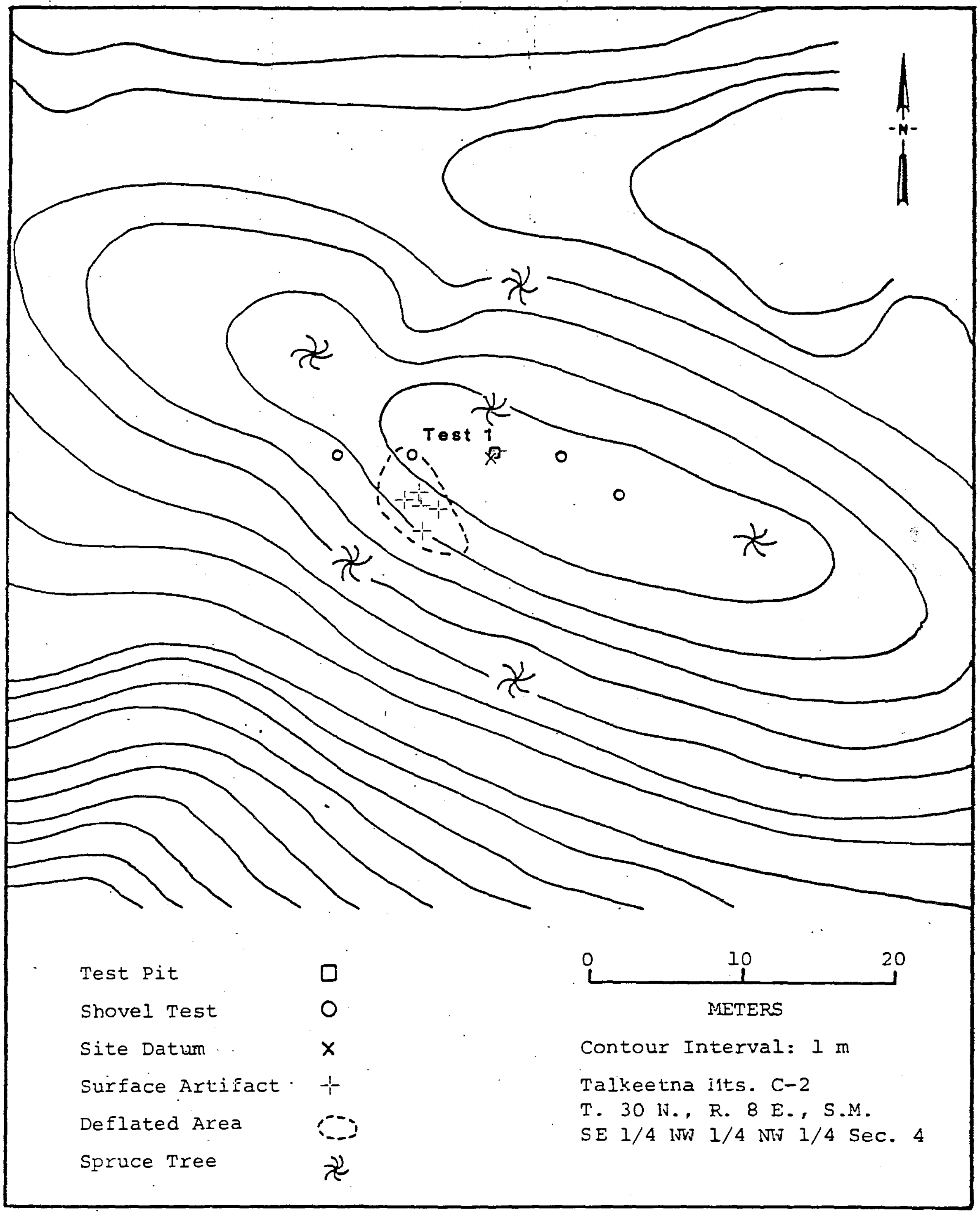


Figure 3.28. Site Map TLM 186.

AHRS Number TLM 187, Accession Number UA83-113

Area: Ca. 200 m Southeast of Confluence of Kosina Creek and Gilbert Creek, Survey Locale 128

Area Map: Figure A.7; Survey Locale Map: Figure A.76

USGS Map: Talkeetna Mts. C-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 450410 Northing 6952800

Latitude 62°42'12" N., Longitude 147°58'00" W.

T. 30 N., R. 8 E., Seward Meridian

Sec. 9, NE¼NE¼SW¼

Site Map: Figure 3.29

Setting: The site is located on the crest of a small knoll ca. 200 m southeast of the confluence of Kosina and Gilbert creeks. Surrounding the site, situated at ca. 762 m asl (2500 feet), are three other small knolls of approximately the same elevation. A small creek, approximately 6 m below the site, drains the uplands to the north and east. To the south, west, and northwest, the terrain drops steeply to Gilbert Creek. Across Gilbert Creek to the west is a large rock outcrop that forms the divide between Kosina and Gilbert creeks. The site's location provides an excellent panoramic view for several kilometers. Three nearby sites that are visible are TLM 071, an historic cabin ca. 100 m to the southeast, as well as TLM 179 and TLM 186, two prehistoric sites located approximately 2 km northwest, across Kosina Creek. Vegetation around the site consists of open spruce woodlands, including black spruce, dwarf birch, Labrador tea, lowbush cranberry, crowberry, bearberry, grasses, lichen, and moss. The site has been partially deflated over one-half of its surface, leaving the underlying glacial drift exposed.

Reconnaissance Testing: Six flakes were recovered from a surface context in a deflated area on the northwest edge of the knoll. One bone fragment of doubtful association with the flakes was also recovered. In addition, a chalcedony flake was found in test pit 1 at the contact of the organic mat and the light gray fine sandy silt (Devil tephra). Eleven shovel tests placed on the knoll, plus 3 on the adjacent knoll produced no additional cultural material.

Collected Artifact Inventory:

Surface:

1 Basalt flake
5 Argillite flakes
1 Unidentifiable bone fragment

Subsurface:

1 Chalcedony flake

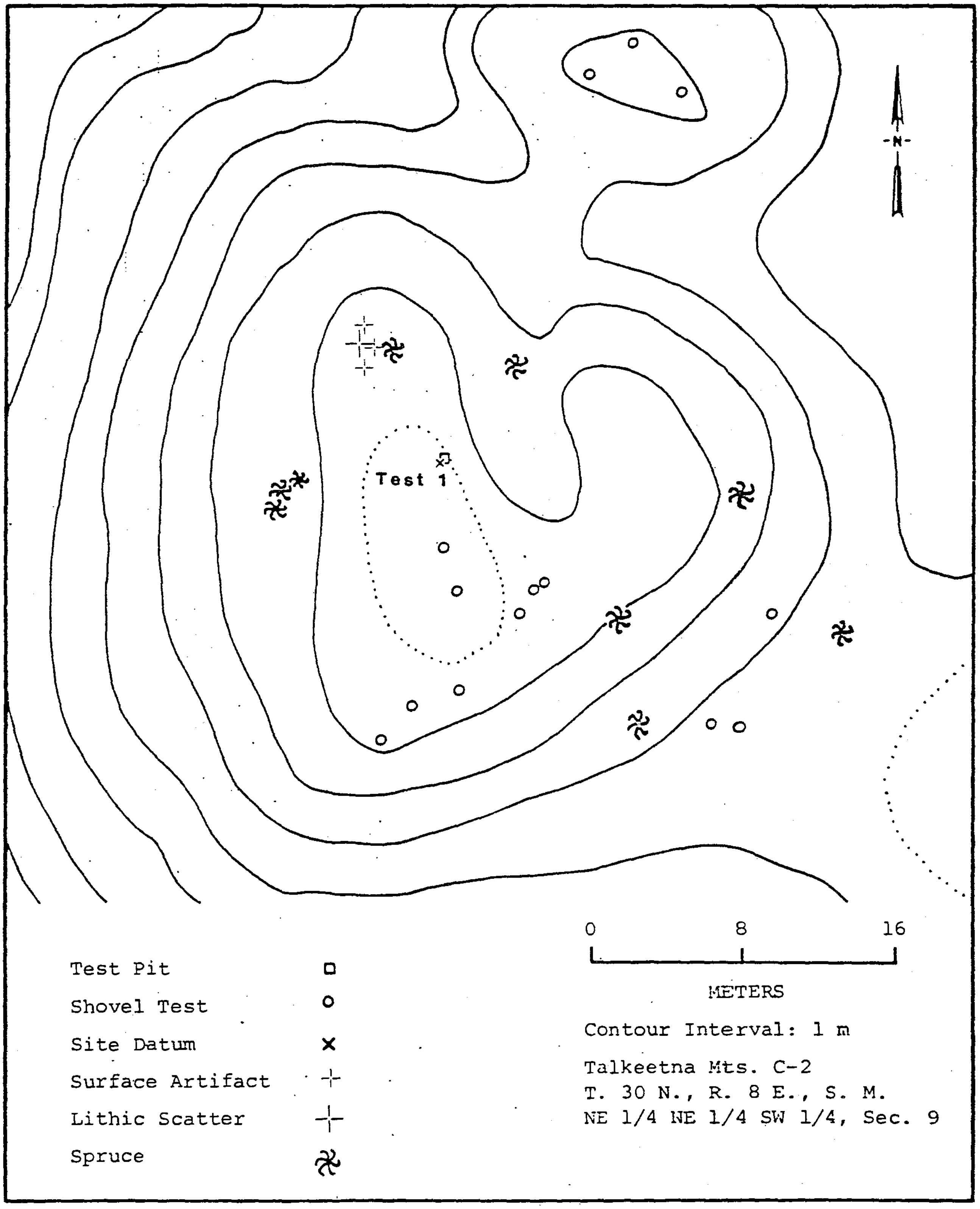


Figure 3.29. Site Map TLM 187.

AHRS Number TLM 188, Accession Number UA83-228

Area: Ca. 7 km Northeast of the Confluence of Tsusena Creek and the Susitna River, Proposed Borrow F

Area Map: Figure A.2; Survey Locale Map: Figure A.129

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 422350 Northing 6971625

Latitude 62°52'05" N., Longitude 148°31'35" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 16, SW¼NW¼NE¼

Site Map: Figure 3.30

Setting: TLM 188 is located on the west side of a small lake about 300 m west of Tsusena Creek and about 7 km northeast of the confluence of Tsusena Creek and the Susitna River. The site is on a small, flat knoll about 2 m above the lake surface at an elevation of ca. 640 m asl (2100 feet). The 50 m diameter lake was formed in a small depression between a series of kames and ridges near a bend in Tsusena Creek. Between the lake and Tsusena Creek are three or four gravel terraces with little soil development. Southwest of the site is a larger and higher ridge which overlooks Tsusena Creek to the north, south, and west. TLM 188 is located about 20 m west of the lake and 10 m southeast of a small stream draining into the pond. Both the lake and inlet stream are visible from the site, but Tsusena Creek is out of view. The knoll on which TLM 188 sits is relatively small and level, being approximately 20 m northwest-southeast by 20 m northeast-southwest. Vegetation on the site consists of black spruce, dwarf birch, blueberry, crowberry, bearberry, lichens, and mosses. The surrounding vegetation is more dense, particularly near the lake, and includes cottonwood, willow, dwarf birch, birch, mosses, and lichens.

Reconnaissance Testing: TLM 188 produced two green argillite flakes, one found in the initial shovel test and the other in the subsequent 40 cm x 40 cm test pit (test pit 1). The excavated flake was found on top of the Devil tephra at the humus contact and the flake found in the shovel test was also probably associated with this level. Six shovel tests in the vicinity failed to reveal any additional cultural material.

Collected Artifact Inventory:

Subsurface:

2 Green argillite flakes

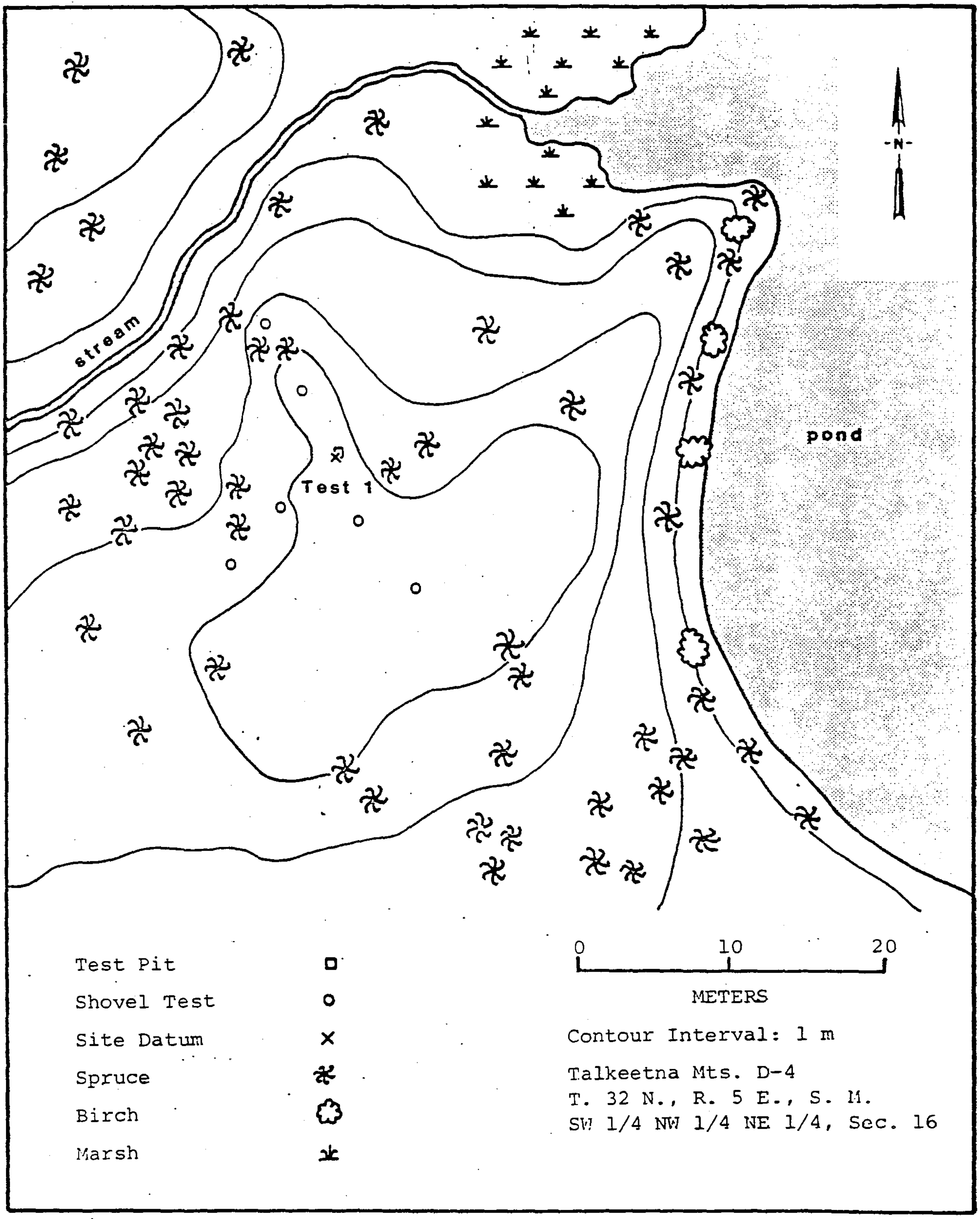


Figure 3.30. Site Map TLM 188.

AHRS Number TLM 189, Accession Number UA83-115

Area: Ca. 1.4 km South-southwest of Oshetna River Mouth, Survey Locale 124

Area Map: Figure A.8; Survey Locale Map: Figure A.75

USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 480300 Northing 6944200

Latitude 62°37'48" N., Longitude 147°22'58" W.

T. 29 N., R. 11 E., Seward Meridian

Sec. 3, SW¼NW¼SW¼

Site Map: Figure 3.31

Setting: The site is located on a discrete elongate knoll ca. 1.4 km south-southeast of the mouth of the Oshetna River. The site occurs as three lithic scatters on the broad relatively flat summit of the knoll which is about 777 m asl (2550 feet) in elevation and 80 m east-west by 40 m north-south in area. Scatter 3 occurs near the highest point of the knoll on the east end of the summit. The two other lithic scatters occur ca. 30 m west, on the southwestern margin of the knoll. Scatters 1 and 2 appear to be oriented toward a 2-hectare lake located ca. 200 m southwest of the site and the surrounding marsh, with slopes to the west of the lake and ridges and knolls to the east of the lake at the top of the Oshetna valley west wall. Also in view to the west is terrain of similar elevation for a distance of approximately 2.0 km. From the summit of the knoll, the slopes to the north, east, and south are steep (ca. 30 degrees), allowing a clear view of the Oshetna/Susitna confluence, slopes descending continuously to the Oshetna/Susitna flood-plain, and areas across the rivers to the north and east. The south and southwest slopes descend more gradually (15 degrees) toward the lake and the surrounding marshy flats, while to the west, a broad saddle joins the site knoll to a north-south oriented ridge ca. 1 km distant. The Oshetna River flows approximately 122 m (400 feet) below the site and approaches to ca. 600 m to the east. Site vegetation consists of birch shrub with scattered spruce. Surface exposures resulting from wind deflation and animal burrowing are evident.

Reconnaissance Testing: Three lithic scatters were observed on the surface. Scatter 1 consisted of two basalt flakes. Scatter 2 consisted of three basalt flakes clustered approximately 5 m southeast of scatter 1. Scatter 3 consisted of a single red chert flake, located approximately 30 m east. A test pit (test pit 1) was placed between scatters 1 and 2, which produced a single basalt flake from the Watana/drift contact. A shovel test 5 m north of test pit 1 produced a basalt flake from the root mat, and was expanded into a second test pit (test pit 2); however no additional lithic material was found. Eight additional shovel tests failed to reveal further subsurface cultural remains.

Collected Artifact Inventory:

Surface:

3 Basalt flakes
1 Red chert flake

Subsurface:

2 Basalt flakes

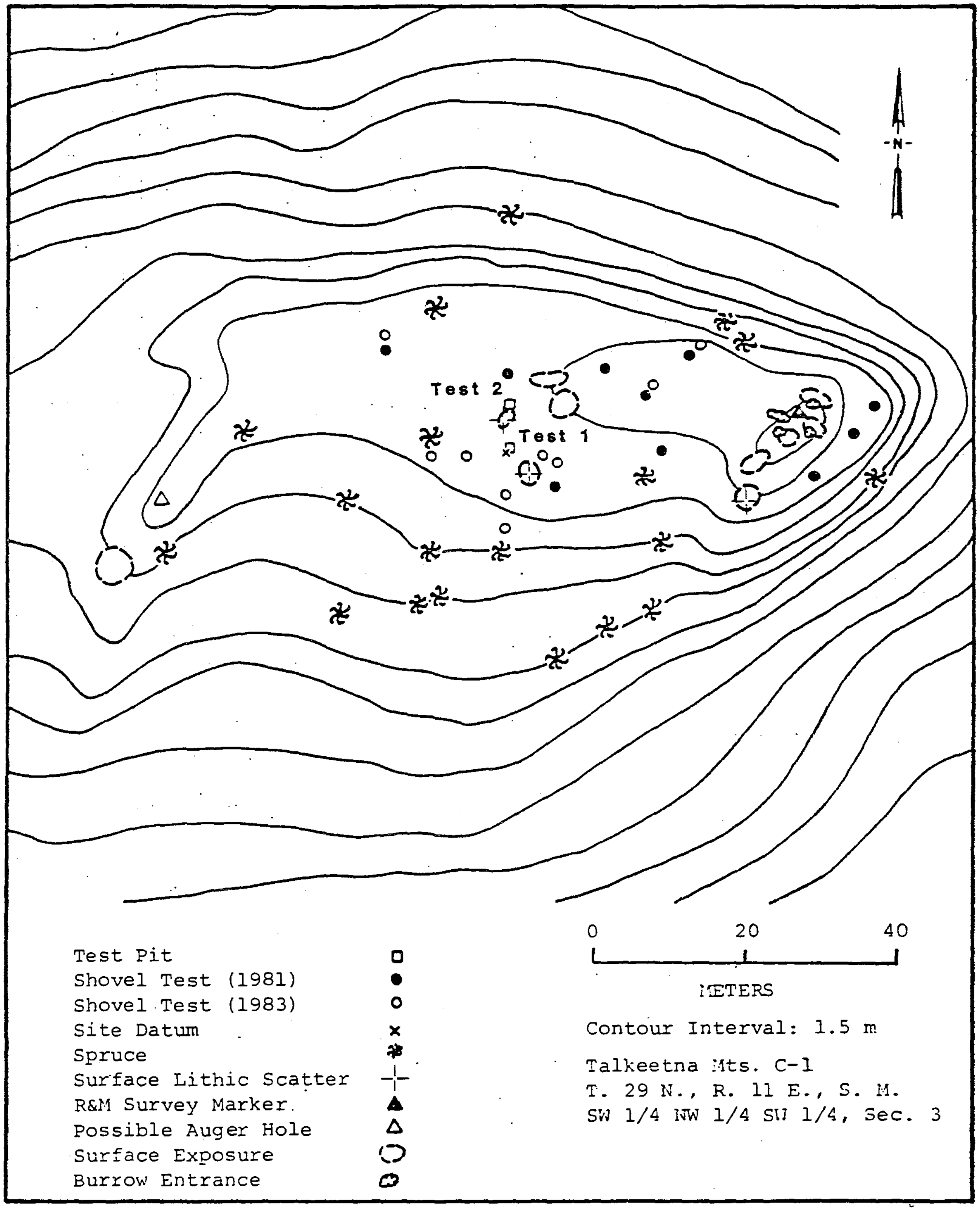


Figure 3.31. Site Map TLM 189.

AHRS Number TLM 190, Accession Number UA83-116

Area: Ca. 1 km South of the Oshetna River Mouth, Survey Locale 124
Area Map: Figure A.8; Survey Locale Map: Figure A.75
USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 480390 Northing 6944630

Latitude 62°38'01" N., Longitude 147°22'55" W.

T. 29 N., R. 11 E., Seward Meridian
Sec. 3, SW¼SW¼NW¼

Site Map: Figure 3.32

Setting: The site is located on a discrete knoll which forms part of a low ridge descending from the TLM 189 site toward the Oshetna River mouth, at an elevation of approximately 716 m asl (2550 feet). The knoll is about 10 m north to south and 15 m east to west, with a height above surrounding terrain of approximately 5 m and 1.5 m to the north and south respectively. The site appears to be locationally oriented toward the following features; the lower 1 km of the Oshetna River and its floodplain, the confluence of the two rivers, the Susitna River, and intervening slopes descending about 91 m to the river. Terrain of similar elevation is in view to the west, as are some areas across both the Susitna and Oshetna rivers. The break in slope at the top of the Oshetna valley wall obstructs the view of the Oshetna River above 1 km upstream. The site knoll is extensively deflated with sparse vegetation including birch and willow shrubs, fireweed, and a thin lichen mat.

Reconnaissance Testing: A surface lithic scatter composed of six basalt flakes and one rhyolite flake was observed on the summit and north side of the knoll. A test pit was placed in the vegetation mat on the top of the knoll (test pit 1), which produced four rhyolite flakes from the Watana tephra. One shovel test on the knoll failed to reveal further cultural material.

Collected Artifact Inventory:

Surface:

1 Basalt flake
1 Rhyolite flake

Subsurface:

4 Rhyolite flakes

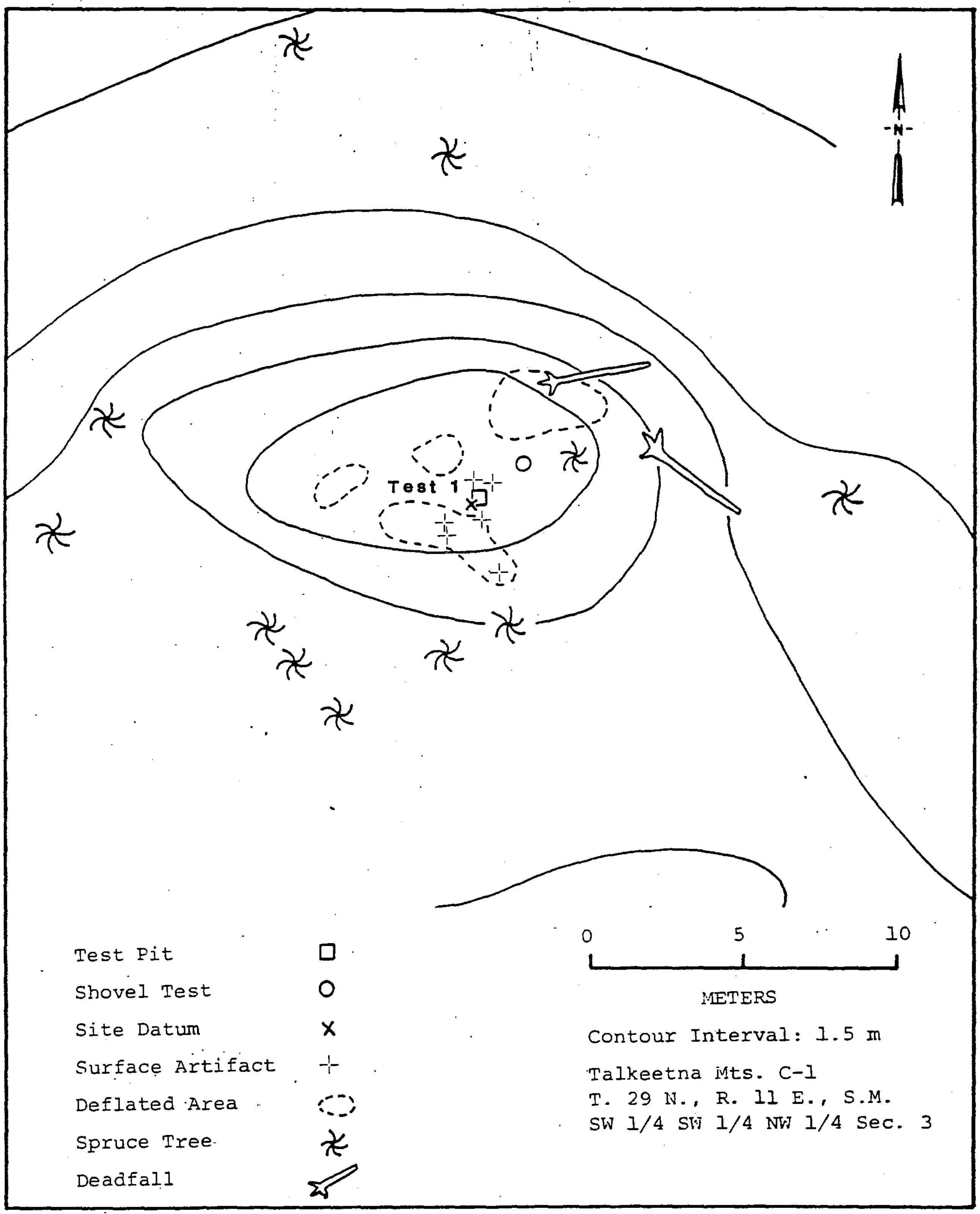


Figure 3.32. Site Map TLM 190.

AHRS Number TLM 191, Accession Number UA83-117

Area: Ca. 4 km North-northeast of Deadman Creek Mouth, Survey Locale 150

Area Map: Figure A.3; Survey Locale Map: Figure A.114

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 426350 Northing 6971150

Latitude 62°51'53" N., Longitude 148°26'44" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 13, SW¼SW¼NW¼

Site Map: Figure 3.33

Setting: TLM 191 is located at an elevation of ca. 747 m asl (2450 feet) about 200 m west of Deadman Creek and 4 km north of its confluence with the Susitna River. The site is located on a ridge which runs parallel to Deadman Creek and borders a long, narrow lake (ca. 600 m northwest-southeast by 40 m wide) of about 5 hectares in area. The ridge is ca. 5 m to 10 m higher in elevation than the lake to the west. TLM 191 is located on the ridge about 300 m north of the southern end of the lake. The region west of the site consists of elongated kames interspersed with kettle lakes and bogs. The site commands an excellent view in all directions, with Deadman Creek to the north and east, the lake immediately west of the site, and the rolling kettle and kame topography further west. TLM 191 is situated on a relatively broad, flat region of the ridge, being approximately 40 m north-south by 30 m east-west, with slopes of approximately 20 degrees angle to the west and east. The site is approximately 2 m higher than the rest of the ridge. Surface vegetation at TLM 191 consists of a thick lichen mat, dwarf birch, blueberry, bearberry, Labrador tea, and grasses. The density of vegetation increases to the east, especially along Deadman Creek where birch, spruce, and dense willow thickets are found.

Reconnaissance Testing: A single tan argillite flake was found in a shovel test. The exact stratigraphic provenience is unknown but probably originated in or below the Watana tephra. Excavation of eight more shovel tests and a 40 cm x 40 cm test pit (test pit 1) failed to reveal any other artifacts.

Collected Artifact Inventory:

Subsurface:

1 Tan argillite flake

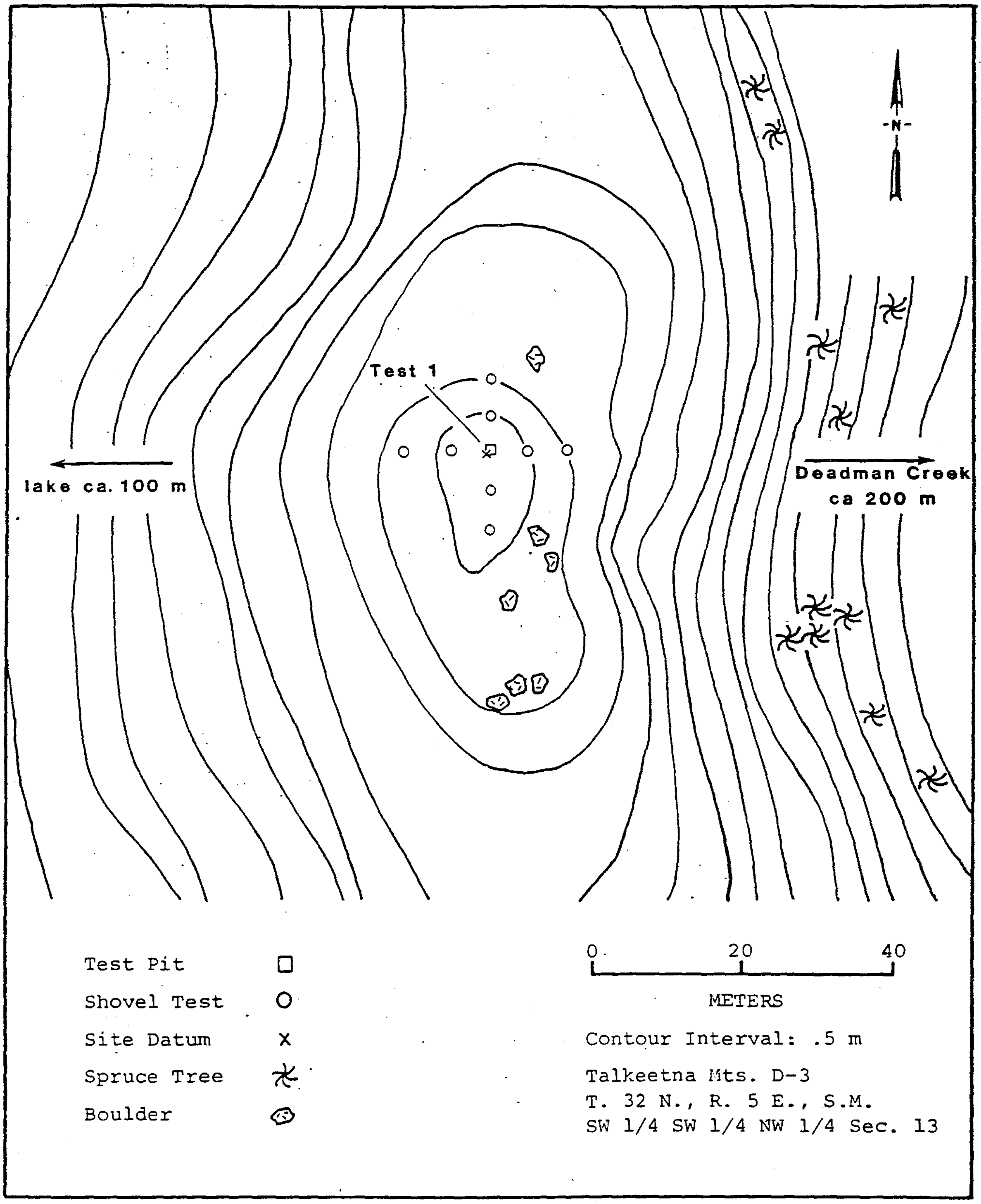


Figure 3.33. Site Map TLM 191.

AHRS Number TLM 192, Accession Number UA83-118

Area: Ca. 500 m East-southeast of Tsusena Creek and 2 km North of the Susitna River, Survey Locale 152

Area Map: Figure A.2; Survey Locale Map: Figure A.117

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 421650 Northing 6968700

Latitude 62°50'27" N., Longitude 148°32'15" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 28, NE¼NW¼NW¼

Site Map: Figure 3.34

Setting: TLM 192 is located at the edge of a plain at an elevation of ca. 670 m asl (2200 feet) approximately 500 m east-southeast of Tsusena Creek and approximately 2 km north of the Susitna River. The plain on which the site is located slopes downward from the west before being truncated by a 30 m wide trough of possible glacial origin. The trough is located immediately west of the site and is about 3 m below the level of the site. The trough slopes downward from its north end approximately 100 m north of the site and about 50 m south of the site it changes its orientation from north-south to a southwesterly direction, sloping more rapidly down toward Tsusena Creek. The terrain on the opposite side of the trough is about 2 m higher than the site. The surrounding terrain is characterized by sinuous kames on a rolling plain. A ridge system originates in the east from the higher portion of the sloping plain. The northwest-southeast trending ridges terminate at their western end above Tsusena Creek. South of the site ca. 1.2 km distant is a high ridge forming the north slope of the Susitna River canyon. Site TLM 018 is located on the crest of the ridge to the south. A series of kettle lakes occur to the northeast, with the closest of them being ca. 500 m distant. Tsusena Creek flows southwestward passing the site at the closest point about 500 m to the west-northwest. The view from the site is restricted to the sloping plain to the east and the trough to the west. Ridges to the north, east, and west limit visibility to the adjacent few hundred meters. Vegetation on the site consists of dwarf birch, Labrador tea, and scattered black spruce. Equisetum is prevalent in the trough. Open stands of spruce characterize the terrain to the east, while more dense stands of spruce occur to the south and the higher elevations to the north. The east-west trending ridge to the south overlooking the Susitna River is vegetated with mosses and berries.

Reconnaissance Testing: A possible scraper of tan argillite was found in a shovel test, probably from within or below the Oshetna tephra. A 40 cm x 40 cm test (test pit 1) and six shovel tests did not reveal any additional cultural material.

Collected Artifact Inventory:

Subsurface:

1 Possible argillite scraper

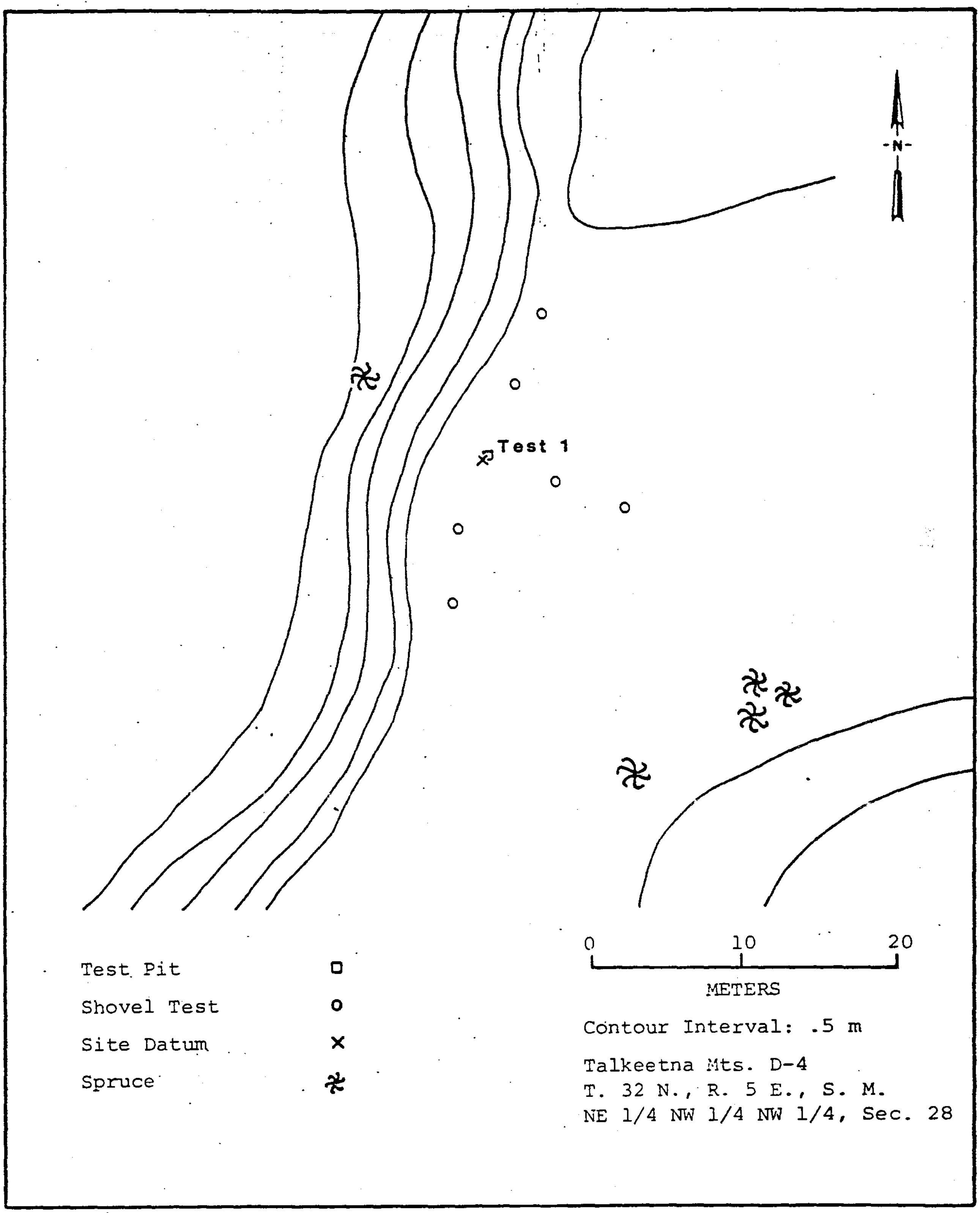


Figure 3.34. Site Map TLM 192.

AHRS Number TLM 193, Accession Number UA83-119

Area: Ca. 4 km North-northeast of the Mouth of Deadman Creek, Survey Locale 150

Area Map: Figure A.3; Survey Locale Map: Figure A.114

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 426250 Northing 6970950

Latitude 62°51'47" N., Longitude 148°26'50" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 13, NW¼NW¼SW¼

Site Map: Figure 3.35

Setting: TLM 193 is located on the southwest slope of a northwest-southeast trending ridge approximately 200 m west of Deadman Creek and 4 km north-northeast of the confluence of Deadman Creek and the Susitna River. The ridge runs parallel to Deadman Creek and divides two long, narrow lakes. The lake to the west measures about 250 m north-south and 30 m east-west, while the lake to the east is about 600 m north-south and 40 m east-west. The ridge begins about 150 m south of the north end of the western lake and continues for approximately another 150 m south of the end of the lake. TLM 193 is about 75 m southeast of the western lake and 20 m northeast of a small pond of less than 1 hectare in size. The site is located at an elevation of ca. 732 m asl (2400 feet) on a greater than 30 degree eroded or deflated surface facing the pond. The site is ca. 10 m higher than the level of the pond but is about 2 m lower than the ridge crest. The view from the site is restricted to the northwest. Vegetation on the site consists of dwarf birch, white spruce, lichens, blueberries, crowberries, and grasses. The surrounding vegetation is more variable with the addition of water lilies and sedges in the pond, black spruce in the bogs, and willow thickets along stream channels.

Reconnaissance Testing: TLM 193 consists of two chert flakes on the surface of a slope exposure of approximately 2 m north-south by 2 m east-west. No additional artifacts were found in the nine shovel tests and a 40 cm x 40 cm test pit (test pit 1).

Collected Artifact Inventory:

Surface:

2 Chert flakes

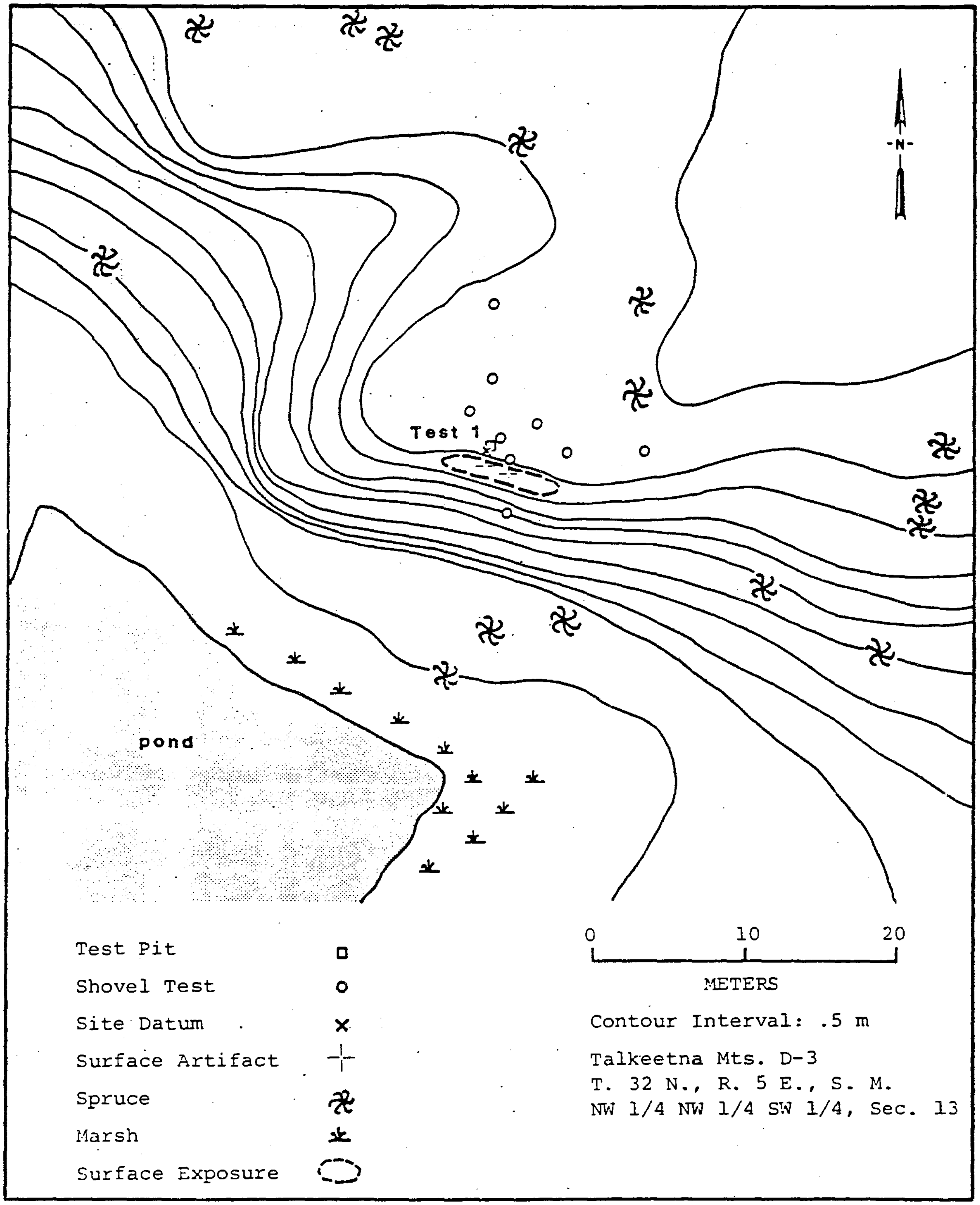


Figure 3.35. Site Map TLM 193.

AHRS Number TLM 194, Accession Number UA83-120

Area: Ca. 2.8 km West of Mouth of Kosina Creek on South Side of Susitna River, Survey Locale 80/32

Area Map: Figure A.4; Survey Locale Map: Figure A.66

USGS Map: Talkeetna Mts. D-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 449250 Northing 6961400

Latitude 62°46'54" N., Longitude 147°59'40" W.

T. 31 N., R. 8 E., Seward Meridian
Sec. 17, SW¼NW¼NE¼

Site Map: Figure 3.36

Setting: TLM 194 is located approximately 2.8 km west of the confluence of the Susitna River and Kosina Creek. The site is situated on a relatively flat, dry terrace edge of a dense, boggy black spruce forest ca. 200 m south of the Susitna River. The topographic setting in the vicinity of the site, lying at ca. 564 m asl (1850 feet), is characterized by a mosaic of small rounded knolls and linear ridge terraces separated by depressions and low saddles. The terrain to the south of the site is a muskeg bog, which is relatively level for approximately 50 m before it steeply slopes to a higher east-west trending ridge terrace. The terrain to the north steeply slopes down approximately 20 degrees for 4 m, and to the west, the terrain descends along a game trail into a saddle and then up onto a rounded knoll. Further west, a drainage flowing from Watana Lake (approximately 5.5 km southwest of TLM 194) empties into the Susitna at a bend in the river ca. 800 m from the site. To the east, the terrain is level along the game trail and connects the site to another dry terrace edge 15 m distant. A freshwater lake, measuring ca. 5 hectares is located ca. 800 m northeast of the site on the opposite side of the Susitna River. The view of the surrounding terrain is limited by a dense black spruce forest in all directions. The steeply ascending slope to the south also obstructs the view. Site vegetation is characterized as a mixed upland spruce-hardwood forest. Black spruce, dwarf birch, alder, Labrador tea, lowbush cranberry, blueberry, and crowberry form the predominant site vegetation. White lichen, moss, grasses and horsetail occur in a few locations along the game trail. Birch trees form a north-south alignment along a drainage on the steep ascending slope south of the site and the low boggy area supports an abundance of tussocks, willow, and horsetail.

Reconnaissance Testing: All artifactual material collected at TLM 194 was recovered from test pit 1. From an initial shovel test, one argillite flake, broken into two pieces, was recovered. This test was expanded to a 40 cm by 40 cm test pit (test pit 1), excavated to a depth of 30 cm. Recovered from test pit 1 were two additional argillite flakes (one was in two pieces) found in the drift (23 cm below surface). It appears that oxidized drift gravels are mixed with gray fine grained particles of the above contact unit (Oshetna). Four shovel tests dug 5 m to the east, south, west and north of test pit 1, plus 19 other shovel tests dug previous to discovery of the site, yielded no additional artifacts. No surface artifacts were found.

Collected Artifact Inventory:

Subsurface:

3 Argillite flakes (5 flake fragments)

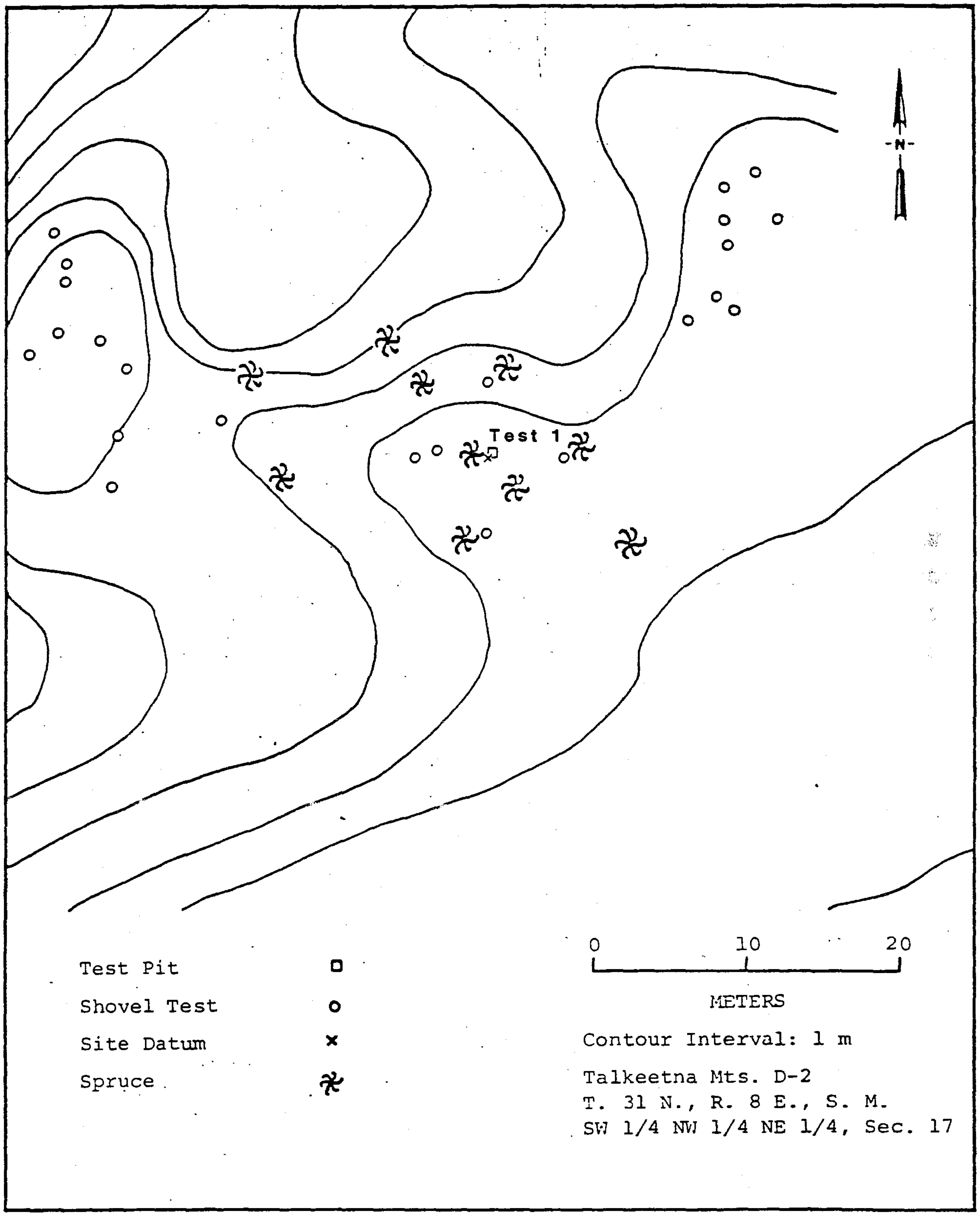


Figure 3.36. Site Map TLM 194.

AHRS Number TLM 195, Accession Number UA83-121

Area: Ca. 300 m East of Watana Creek, 13 km Northeast of Confluence of Watana Creek and the Susitna River, Survey Locale 142
Area Map: Figure A.3; Survey Locale Map: Figure A.98
USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 444900 Northing 6976510

Latitude 62°54'57" N., Longitude 148°05'00" W.

T. 33 N., R. 7 E., Seward Meridian
Sec. 26, SE¼SW¼SW¼

Site Map: Figure 3.37

Setting: The site is situated on the gradual slope of a northeast to southwest oriented ridge approximately 300 m east of Watana Creek and 150 m north of a narrow drainage at an elevation of ca. 750 m asl (2500 feet). The clearwater drainage to the south serves as an outlet for several small lakes (2 hectares or less) located within a 300-400 m radius to the north and east of the site. The surrounding undulating kettle-kame topography is visible in all directions except to the northeast where the ridge gradually slopes up and broadens out into a flat, boggy muskeg area. The view to the south overlooks the sweeping north-facing slope of the unnamed drainage and the terrace ridge beyond. The drainage itself is blocked by the sloping, undulating terrain. High knolls and the west terrace rim of Watana Creek's deep valley is visible to the west. Also visible is the west valley wall, approximately 60 m in height and characterized by slumping and mass wasting. The site vegetation is comprised of an upland spruce-hardwood forest consisting of white spruce, alder, willow, dwarf birch, lowbush cranberry, Labrador tea, blueberry, bearberry, crowberry, dwarf dogwood, white lichen and moss. The spruce and alder become more common downslope and less common upslope from the site.

Reconnaissance Testing: The site contains both surface and subsurface cultural material. A basalt flake was located on the edge of a southwest oriented elongated ridge with a ca. 4 to 5 degree downslope. A 40 cm x 40 cm test (test pit 1) was placed 1.3 m southwest of the surface find. A thermally altered red chert flake was recovered from the contact of the organic mat and a yellowish-brown sandy silt 5 cm below the surface. Eight shovel tests were placed 10 m and 5 m respectively in each cardinal direction from test pit 1, all with negative results.

Collected Artifact Inventory:

Surface:

1 Basalt flake

Subsurface:

1 Thermally altered red chert flake

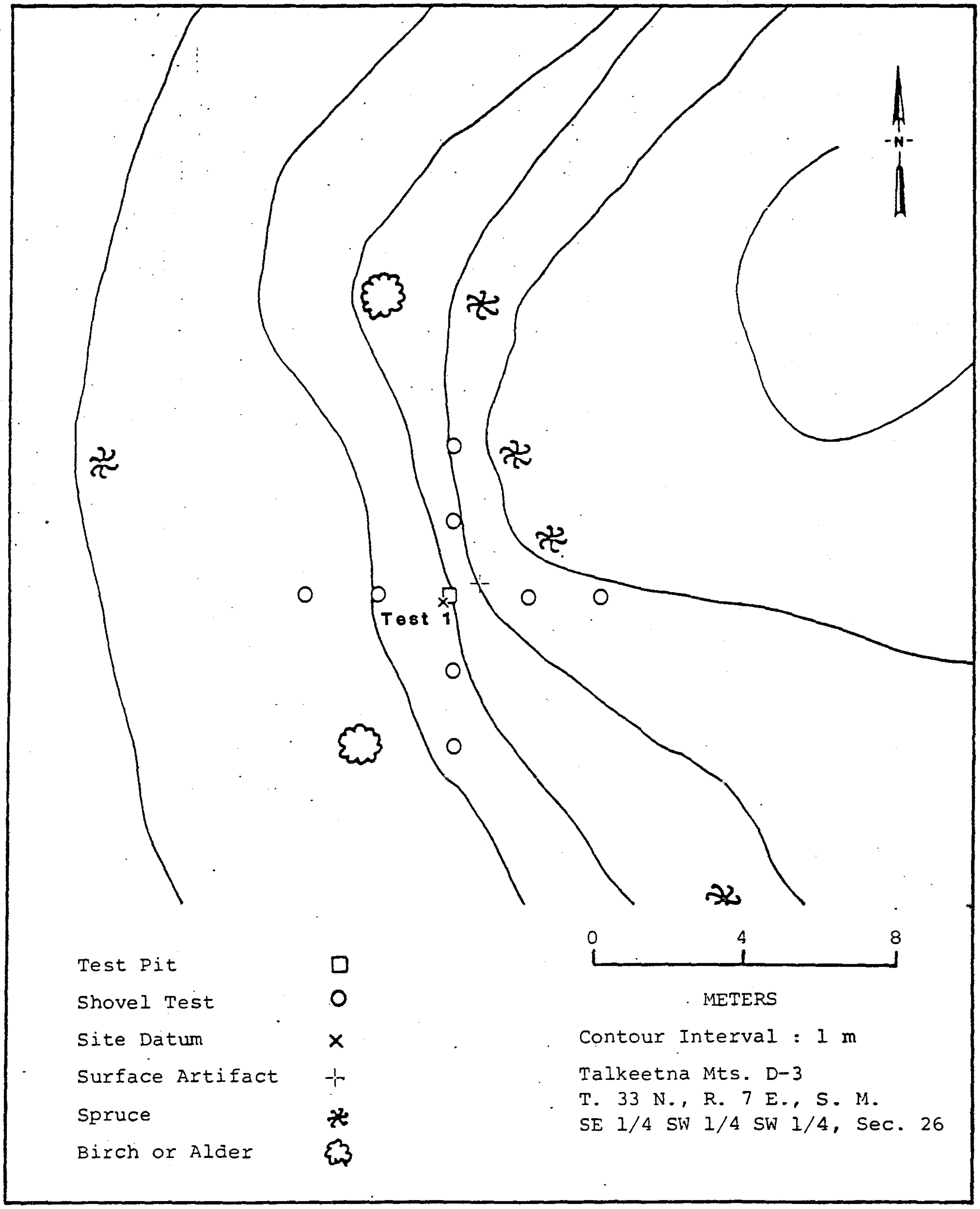


Figure 3.37. Site Map TLM 195.

AHRS Number TLM 196, Accession Number UA83-122

Area: Ca. 1.6 km up Goose Creek from its Confluence with the Susitna River, Survey Locale 123

Area Map: Figure A.8; Survey Locale Map: Figure A.73

USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 477050 Northing 6944800

Latitude 62°38'06" N., Longitude 147°26'49" W.

T. 29 N., R. 11 E., Seward Meridian

Sec. 5, NW¼SW¼NW¼

Site Map: Figure 3.38

Setting: TLM 196 is located on the east bank of Goose Creek about 1.6 km upstream from its confluence with the Susitna River. The site is located in a soil exposure resulting from soil slumping or solifluction flow. The site is 7 m east of Goose Creek and about 3 m above stream level. TLM 196 is at an elevation of approximately 671 m asl (2200 feet) and is near the bottom of the small valley containing Goose Creek. The terrain feature in which TLM 196 is found is a low stream terrace with infrequent erosional slumps. The view from the site is restricted to the immediate vicinity of Goose Creek for approximately 400 m upstream to the south and for 200 m downstream to north-northeast. Heavy vegetation and slopes of greater than 20 degrees prevent views to the west and east. Vegetation on the site is of the lowland spruce hardwood type. It consists of equisetum, shrub willow, grasses, Labrador tea, fireweed, birch, and dwarf birch. Immediately adjacent to Goose Creek are moister lowlands with sphagnum moss and other wet tundra vegetation. The steep slopes confining Goose Creek maintain dense willow thickets and heavy stands of black spruce.

Reconnaissance Testing: TLM 196 was found when a large mandibular fragment with molar was found on an eroded surface below an erosional slump. The slumped area was cut back and another bone fragment was found in situ in massive silty clay deposits. A 2 m wide excavation 50 cm into the bank uncovered three additional bone fragments of the mandible. Two radiocarbon samples from above the bone unit produced dates of 2040 ± 70 years: 90 B.C. (Beta-7292) and 2120 ± 60 years: 170 B.C. (Beta-7293). The dates likely refer to the redeposition of the faunal remains and not to the age of the specimen which appears to be late pleistocene in origin based on molar size. The complete molar associated with this specimen is approximately 1/3 larger than similar molars found in modern moose, but compares well in size to Pleistocene age specimens (Dale Guthrie, personal communication). All bone fragments seem to be derived from organic lenses in massive, clayey solifluction or mud flow deposits. The five bone fragments articulate together representing the molar row and ramus of a large moose (Figure 3.68).

Collected Artifact Inventory:

Surface:

1 Moose mandible fragment with tooth

Subsurface:

4 Moose mandible fragments

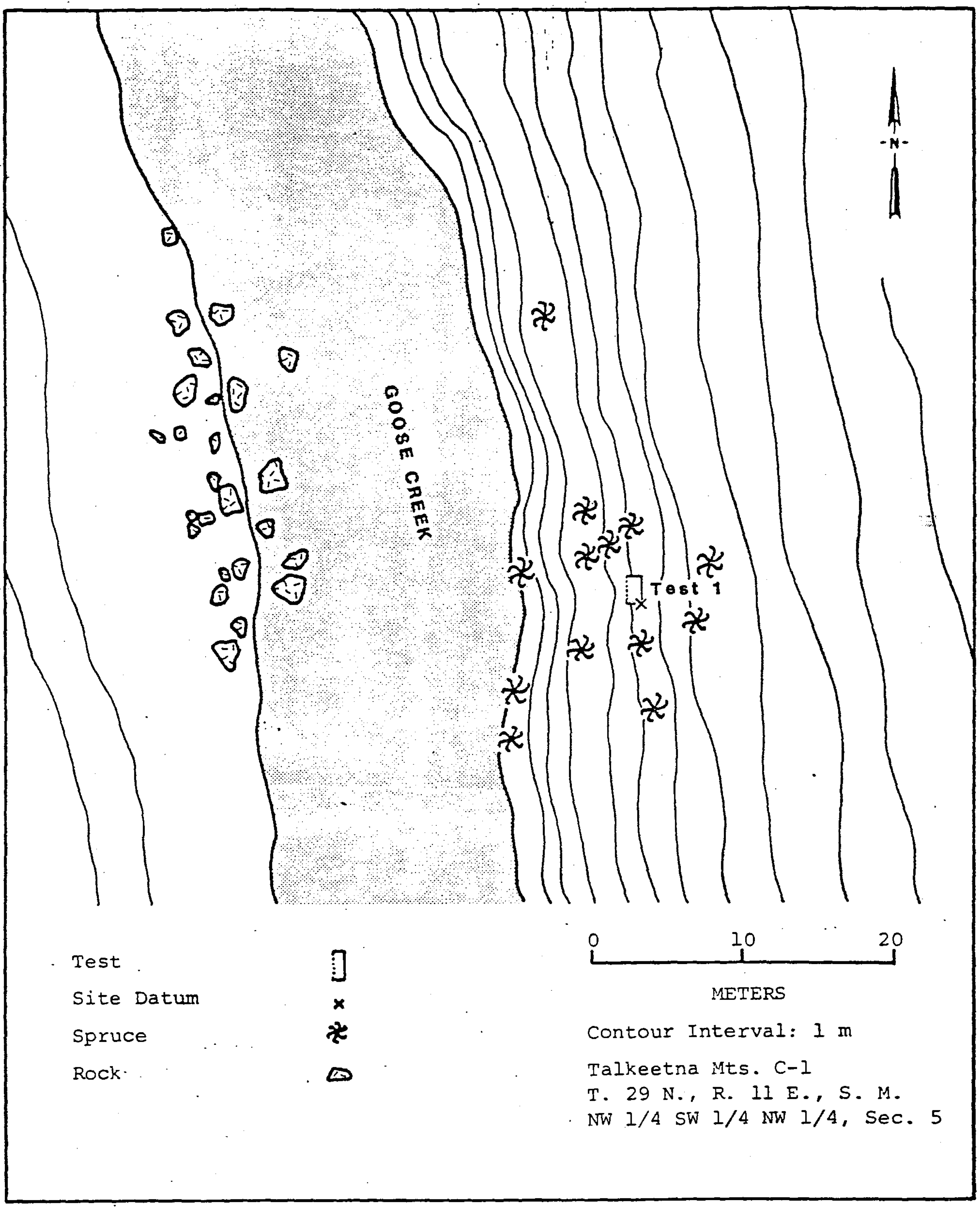


Figure 3.38. Site Map TLM 196.

AHRS Number TLM 197, Accession Number UA83-123

Area: Ca. 3.0 km North of the Confluence of Deadman Creek with the Susitna River, Survey Locale 150

Area Map: Figure A.3; Location Map: Figure A.113

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 425400 Northing 6970550

Latitude 62°51'30" N., Longitude 148°27'50" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 14, NW¼SW¼SE¼

Site Map: Figure 3.39

Setting: TLM 197 is located at an elevation of just over 730 m asl (2400 feet) ca. 1.2 km west of Deadman Creek and approximately 3 km north of the confluence of Deadman Creek and the Susitna River. The site is on a 15 to 20 degree southwest-facing slope of a low ridge. The ridge occurs on a gently rolling plain that slopes gradually southward toward the Susitna River. The plain is generally boggy, characterized by fairly level, moist muskeg areas and shallow ponds among occasional low, flat ridges. Two small ponds, each less than 1 hectare in area, lie south of the site; the nearer of which is about 45 m away. Another, larger pond is located about 200 m southeast of the site. The ridge on which TLM 197 is located curves around the northwest, north, and northeast margins of the nearest pond to the south. The ridge is about 6 m above the pond and adjacent swampy area. The south slope of the ridge has intermittent gravel exposures, with TLM 197 located on one of them, about 3 m above and overlooking the swamp. The view to the northeast is obstructed by the ridge and the thick dwarf birch stands, up to 2 m in height, that cover it. Toward the northwest, Tsusena Butte is visible across higher, more pronounced ridges. Other ridges covered with dwarf birch and scattered black spruce obstruct the view to the east and south. To the southwest the large bare knoll on which TLM 016 lies is prominent ca. 1.3 km away. The view over the plain extends in this direction to the ridges just north of the Susitna River. The vegetation of the slope on which TLM 197 lies consists of sparse Labrador tea, blueberry, bearberry, and crowberry, with lichens and grasses. Dense dwarf birch and occasional black spruce cover the low ridges in the vicinity, the boggy plain is largely moss with grasses and infrequent black spruce, and the swamp and pond-edge flora include moss, sedges, and water lilies.

Reconnaissance Testing: A single gray chert pebble from which two flakes had been removed was found on a slope exposure about 20 m northwest-southeast by 5 m southwest-northeast. No additional artifacts were found in any of the ten shovel tests or in the 40 cm x 40 cm test pit 1.

Collected Artifact Inventory:

Surface:

1 Gray chert core with two flake scars

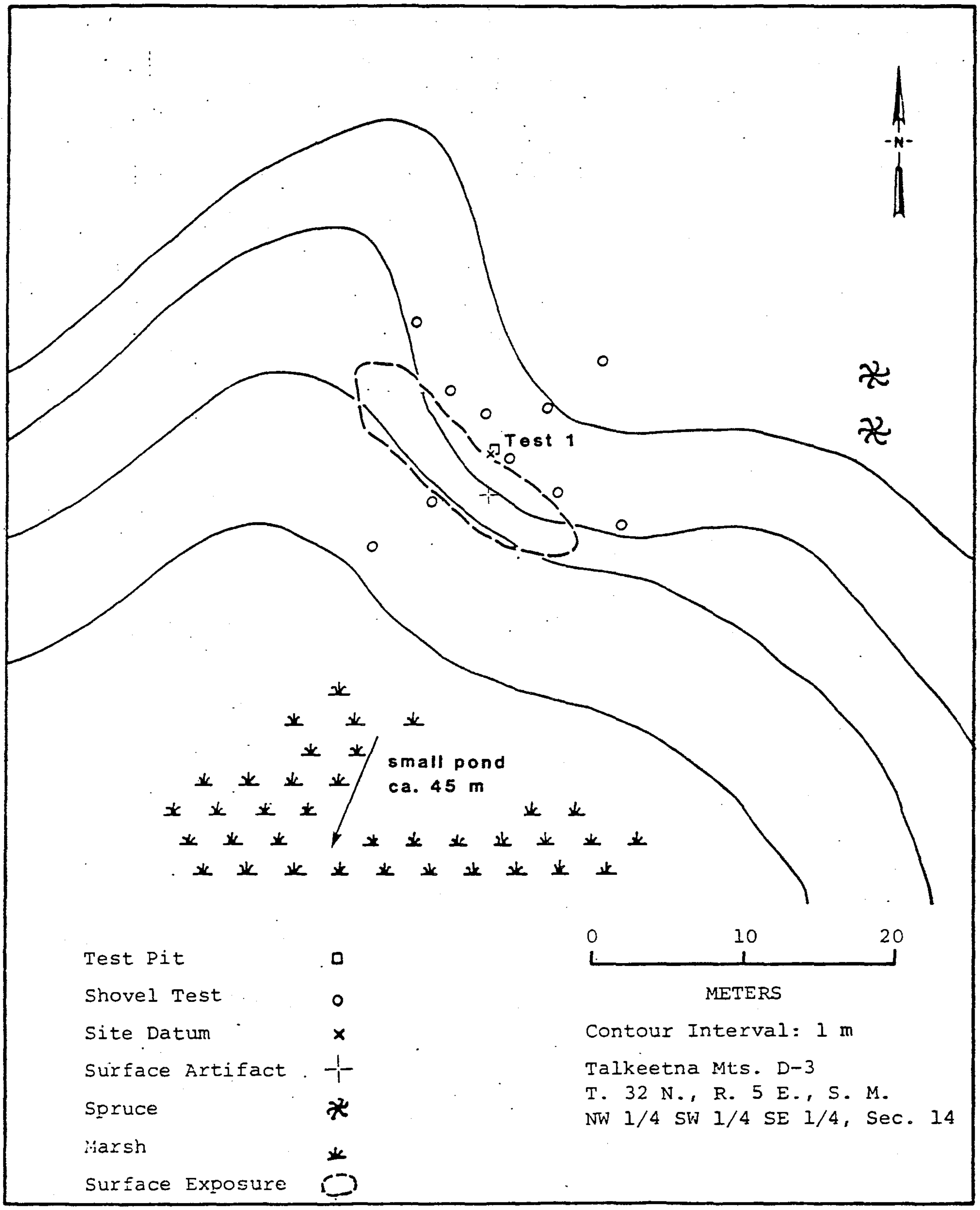


Figure 3.39. Site Map TLM 197.

AHRS Number TLM 198, Accession Number UA83-124

Area: Ca. 12 km Northeast of the Confluence of Watana Creek and Susitna River, Survey Locale 141

Area Map: Figure A.3; Survey Locale Map: Figure A.95

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 443600 Northing 6975900

Latitude 62°54'35" N., Longitude 148°06'25" W.

T. 33 N., R. 7 E., Seward Meridian

Sec. 34, NE¼SE¼NW¼

Site Map: Figure 3.40

Setting: TLM 198 is on a high plateau ca. 732 m asl (2400 feet) and approximately 12 km northeast of the confluence of Watana Creek and the Susitna River. The site is at the extreme southern end of the plateau where it begins a steep descent to Watana Creek approximately 400 m to the south. The plateau is dissected by numerous stream channels which drain the plateau and give its margins a scalloped appearance. The plateau is bordered on the east by Watana Creek and on the west by a major tributary of Watana Creek. The two streams converge approximately 900 m southwest of the site. North from TLM 198 the plateau extends for several kilometers and is relatively level. The region is poorly drained with numerous, shallow, water-filled depressions. Due to its location at the edge of the plateau, the site has unobstructed views of Watana Creek to the south and east. A small stream occurs about 10 m west of the site. The stream's course is steep and heavily vegetated. Vegetation on the site consists of open stands of dwarf birch, mosses, lichens, blueberries, and several small white spruce. Vegetation on the remainder of the plateau is similar to the above.

Reconnaissance Testing: The site contained a single patinated argillite flake found in a shovel test. The exact stratigraphic provenience of the flake is unknown, but it may have originated from a root zone between the Devil and Watana tephras. A test pit (test pit 1) and six additional shovel tests in the vicinity of the find were sterile.

Collected Artifact Inventory:

Subsurface:

1 Light brown patinated argillite flake

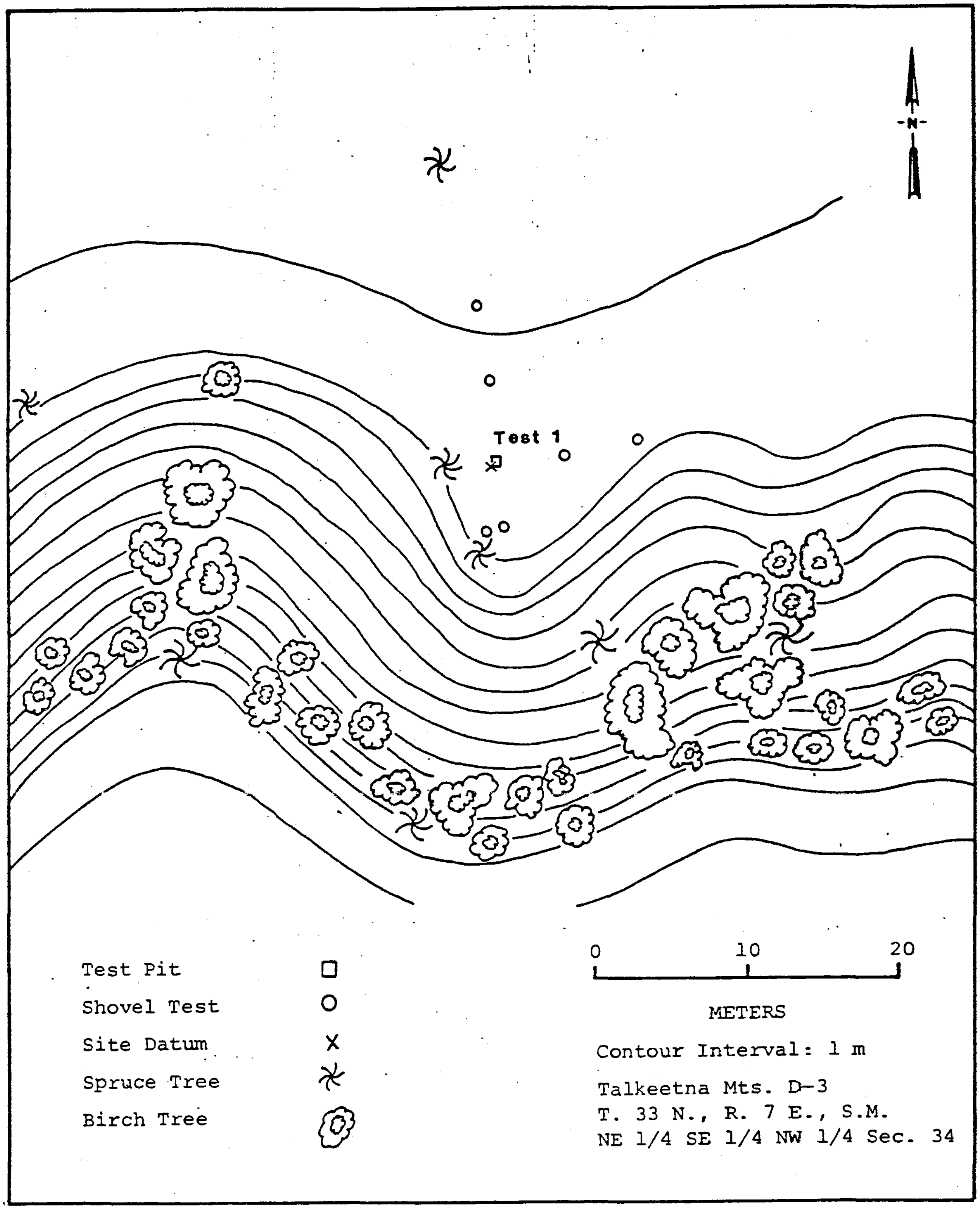


Figure 3.40. Site Map TLM 198.

AHRS Number TLM 199, Accession Number UA83-125

Area: Ca. 500 m Northwest of the Confluence of Watana Creek and the Susitna River, Survey Locale 22

Area Map: Figure A.3; Survey Locale Map: Figure A.60

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 435900 Northing 6967700

Latitude 62°50'05" N., Longitude 148°15'20" W.

T. 32 N., R. 6 E., Seward Meridian

Sec. 25, SE¼SW¼NW¼

Site Map: Figure 3.41

Setting: TLM 199 is on a relatively minor forested ridge approximately 500 m northwest of the confluence of Watana Creek and the Susitna River. This ridge is the first ridge north of the Susitna River terrace and the lowest in a series of east-west trending ridges. TLM 199 is on the lowest end of the ridge at an elevation of ca. 488 m asl (1600 feet), with higher ridges and knolls to the east. There is a prominent terrace to the south, Watana Creek approximately 200 m to the southeast, and the Susitna River approximately 500 m to the south. To the north and west are ridges rising up about 50 m above TLM 199. Approximately 150 m to the northwest is a small stream, apparently following a remnant stream channel and disappearing into a small depression ca. 100 m southwest of the site. Visibility from TLM 199 is virtually blocked in all directions. To the south and west, dense stands of birch and spruce obstruct the view, while to the north and east higher ridges and knolls are found. Vegetation on the site consists of black spruce, birch, dwarf birch, Labrador tea, blueberry, various other berries, mosses, and lichens. The off-site vegetation is very similar with birch dominating the south facing slopes and spruce on the north facing slopes.

Reconnaissance Testing: A total of eight basalt flakes were recovered--one from the initial shovel test and seven from the subsequent 40 cm x 40 cm test pit 1. All of the artifacts were derived from immediately on top of the Oshetna tephra layer. No artifacts were recovered from any of the seven shovel tests intended to define the limits of the site.

Collected Artifact Inventory:

Subsurface:

8 Basalt flakes

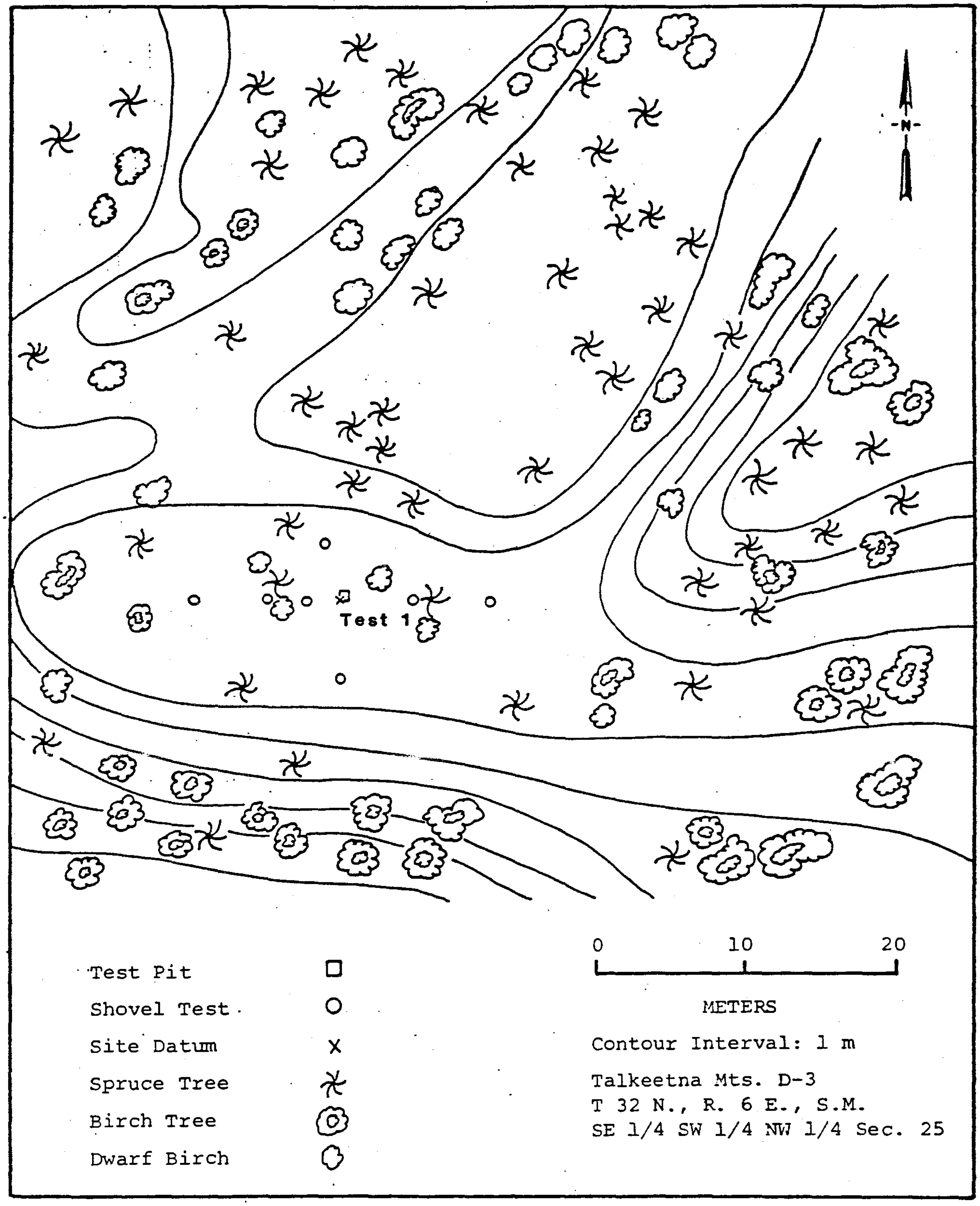


Figure 3.41. Site Map TLM 199.

AHRS Number TLM 200, Accession Number UA83-126

Area: Ca. 600 m Northwest of the Confluence of Watana Creek and the Susitna River, Survey Locale 22

Area Map: Figure A.3; Survey Locale Map: Figure A.60

USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 435700 Northing 6967750

Latitude 62°50'08" N., Longitude 148°15'41" W.

T. 32 N., R. 6 E., Seward Meridian

Sec. 25, SW¼SW¼NW¼

Site Map: Figure 3.42

Setting: TLM 200 is located at ca. 549 m asl (1800 feet) about 500 m west of Watana Creek and ca. 300 m north of the Susitna River. The site is located ca. 5 m below the summit of a northeast trending ridge on a 10-15 degree slope. The site is on the highest terrain feature immediately northwest of the confluence of Watana Creek and the Susitna River. TLM 200 is situated 30 m northeast of the summit of the knoll, with views to the north, west, and east. Open ground is found immediately west of the site on the west slope. The south facing slopes, approximately 750 m north of the site, are obscurred by mixed spruce-hardwood forests. The closest water source is ca. 150 m to the northeast. To the southeast of TLM 200 is an old river terrace 70-100 m below the level of the site. A remnant stream channel is present to the northwest. Vegetation on the site consists of birch and scattered white spruce. Ground cover is composed of Labrador tea, berries, lichens, and moss. The surrounding vegetation is thick birch forest on the tops of ridges and slopes, with spruce and dense stands of dwarf birch in lowland areas.

Reconnaissance Testing: Testing at TLM 200 consisted of one test pit and eight shovel tests. A single basalt flake was recovered from the initial shovel test and no additional material was found in the subsequent 40 cm x 40 cm test pit 1. The eight shovel tests around the site were sterile.

Collected Artifact Inventory:

Subsurface:

1 Basalt flake

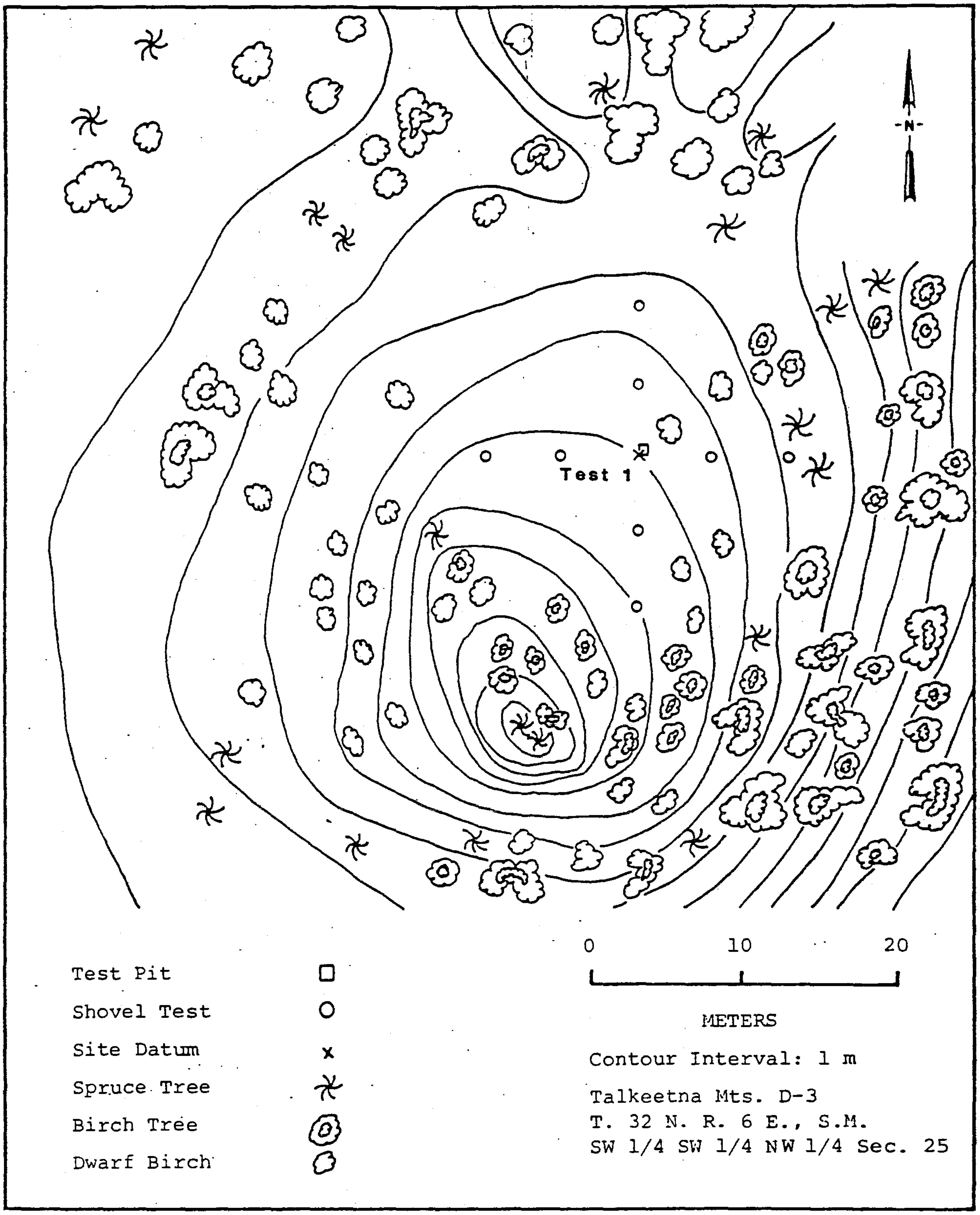


Figure 3.42. Site Map TLM 200.

AHRS Number TLM 201, Accession Number UA83-127

Area: Ca. 50 m East of Tsusena Creek and 2.8 km North of the Confluence of Clark Creek and Tsusena Creek, Proposed Borrow C
Area Map: Figure A.2; Survey Locale Map: Figure A.127
USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420800 Northing 6979200

Latitude 62°56'80" N., Longitude 148°33'30" W.

T. 33 N., R. 5 E., Seward Meridian
Sec. 20, NE¼NW¼SW¼

Site Map: Figure 3.43

Setting: TLM 201 is located ca. 50 m east of Tsusena Creek and 2.8 km north of the confluence of Clark Creek and Tsusena Creek. The site is on an elongated northeast-southwest trending knoll (ca. 20 m long by 5 m wide), which is part of first terrace above Tsusena Creek. The knoll is ca. 10 m above Tsusena Creek, at approximately 732 m asl (2400 feet). The site is located on the first knoll north of a swampy area, consisting of patches of grasses with standing water and patches of black spruce bog, which extends along the western margins of Tsusena Creek almost to its confluence with Clark Creek. The terrace system slopes gently westward to the flanks of the hills that separate the Clark Creek and Tsusena Creek drainages. A small stream, less than 2 m wide, separates the knoll with site from the remainder of the terrace system to the north and northwest. The knoll and associated terraces to the north and west are covered by mosses (some in hummocky patches), lichens, blueberries, crowberries, Labrador tea and dwarf birch. Scattered spruce trees are present around the perimeter of the knoll and on the terraces. The site has an excellent view of the northwestern spur of Tsusena Butte and the butte itself as well as the Tsusena Creek Valley to the south and southeast.

Reconnaissance Testing: TLM 201 was represented by subsurface and surface flakes. Test pit 1 produced one flake at the Sod/Devil contact and one flake in the Devil tephra. Test pit 2, 10 m southwest of test pit 1, yielded numerous basalt flakes. One flake was recovered from an exposure 2 m south of test pit 2. Four shovel tests initiated to determine the extent of the site were sterile.

Collected Artifact Inventory:

Surface:

1 Basalt flake

Subsurface:

Test pit 1:

2 Basalt flakes

Test pit 2:

201 Basalt flakes

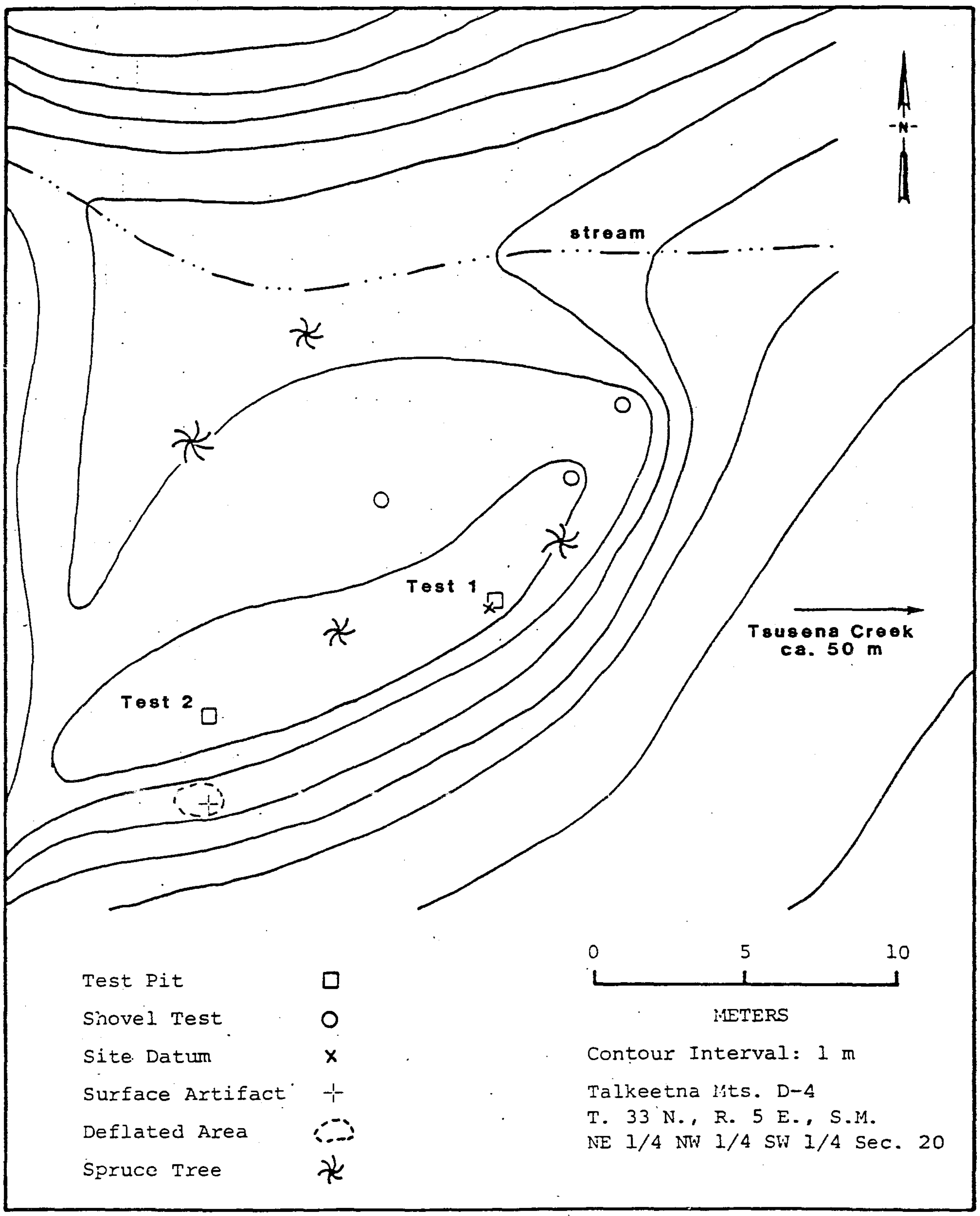


Figure 3.43. Site Map TLM 201.

AHRS Number TLM 202, Accession Number UA83-128

Area: Ca. 100 m West of Tsusena Creek and ca. 200 m North of Clark Creek, Proposed Borrow F

Area Map: Figure A.2; Survey Locale Map: Figure A.128

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420700 Northing 6976800

Latitude 62°54'50" N., Longitude 148°33'38" W.

T. 33 N., R. 5 E., Seward Meridian

Sec. 32, NE¼NW¼NW¼

Site Map: Figure 3.44

Setting: TLM 202 is located on one of a series of terraces ca. 100 m west of Tsusena Creek and 200 m north of Clark Creek, at an elevation of ca. 717 m asl (2350 feet). The site is on the eastern portion of a ca. 100 m square flat terrace, which parallels Tsusena Creek. A 2 m break in slope associated with the terrace edge is 40 m to the east. The terrace and surrounding terrain are relatively flat and heavily vegetated. Approximately 5 m south of a game trail located on the terrace is a small, dried-up pond filled with tussocks. There are no other similar features in the vicinity. The majority of the ground cover consists of thick, hummocky moss patches covered with dwarf birch. Labrador tea, blueberries and lichens are also present. Scattered spruce trees form the upper canopy. Just before the breaks in slope, there are a number of frost-jacked boulder patches many of which are filled with water. The view from the site is limited by the spruce trees to the upper elevation of the surrounding hills.

Reconnaissance Testing: Cultural remains from TLM 202 consist of one basalt flake which was recovered from the lower portions of the Watana tephra. The subsequent 40 cm x 40 cm test pit 1 and the nine shovel tests initiated to determine the extent of the site were all sterile.

Collected Artifact Inventory:

Subsurface:

1 Basalt flake

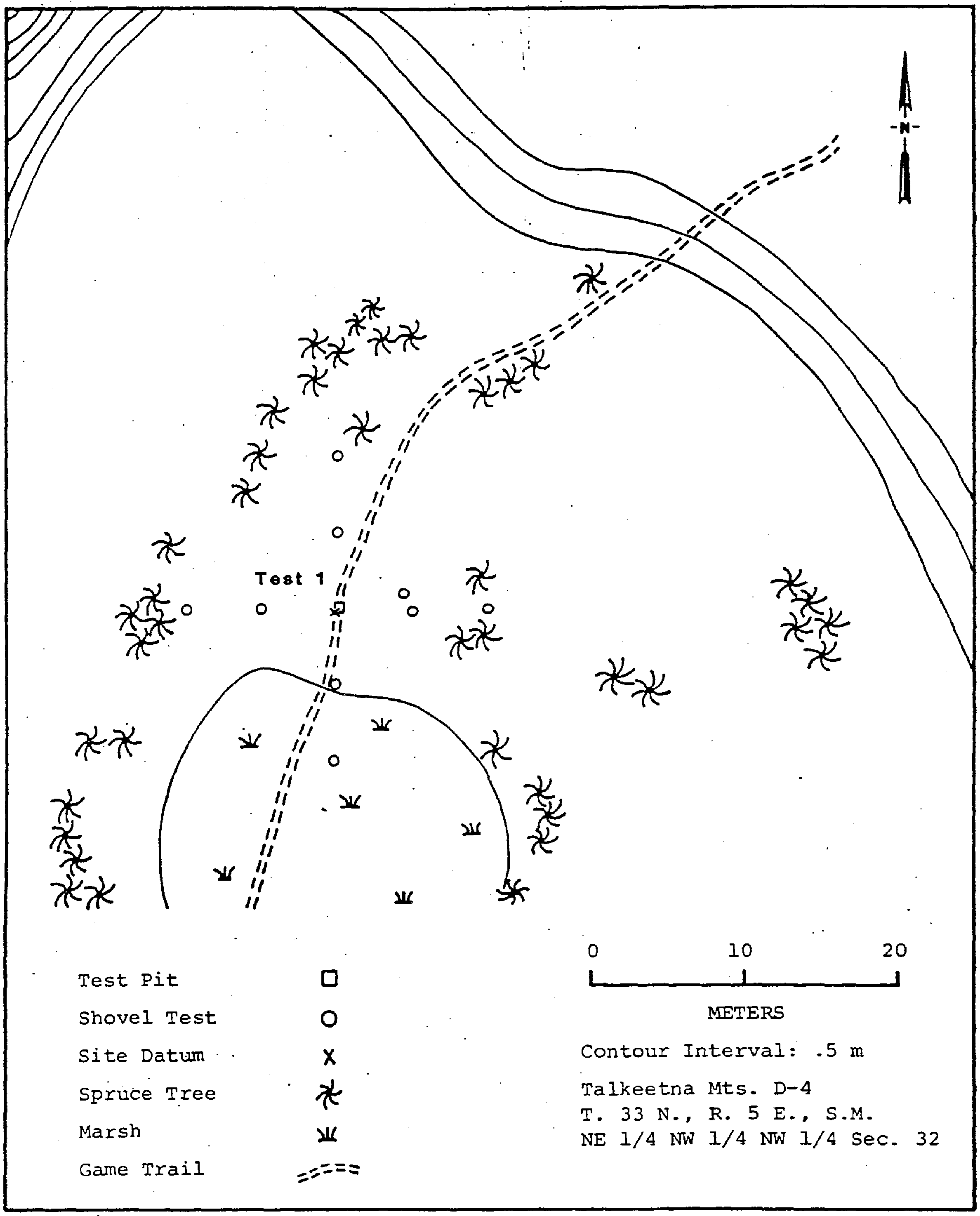


Figure 3.44. Site Map TLM 202.

AHRS Number TLM 203, Accession Number UA83-129

Area: Ca. 50 m South of Clark Creek and 300 m West of the Confluence of Clark Creek and Tsusena Creek, Proposed Borrow F

Area Map: Figure A.2; Survey Locale Map: Figure A.128

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420700 Northing 6976500

Latitude 62°54'40" N., Longitude 148°33'35" W.

T. 33 N., R. 5 E., Seward Meridian

Sec. 32, SE¼NW¼NW¼

Site Map: Figure 3.45

Setting: TLM 203 is located ca. 300 m west of the confluence of Clark Creek and Tsusena Creek and 50 m south of Clark Creek at an elevation of ca. 732 m asl (2400 feet). The site is on a knoll which is part of an east-west trending terrace that parallels Clark Creek for approximately 1 km. The knoll on which the site is found is one of the highest in the vicinity. The knoll top is vegetated by mosses, lichens, blueberries, Labrador tea and dwarf birch. Scattered spruce trees are present off the knoll crest and in the surrounding areas. Lower elevations have thicker moss cover but otherwise the vegetation is similar. To the north the terrace slopes steeply greater than 30 degrees downward to Clark Creek, ca. 30 m below the site. Clark Creek is ca. 20 m wide at this point, bordered by low, flat floodplains. Downcutting by Clark Creek has created valley wall constrictions. The terrace slopes gently eastward to the confluence of Tsusena Creek and Clark Creek, which is not visible from the site. To the south the terrace system continues, cut by a small gully. The view from the site is limited by spruce trees. At present the view includes a 1 km portion of Clark Creek to the north and west and the hills beyond, as well as Tsusena Butte and portions of the Tsusena Creek valley.

Reconnaissance Testing: TLM 203 was represented by surface and subsurface flakes. One basalt flake was found on the surface between test pits 1 and 2. Test pit 1 contained four basalt flakes in the organic layer and at the sod/Devil contact. Test pit 2 yielded one gray chert flake in the initial shovel test. Five shovel tests initiated to determine the limits of the site were sterile.

Collected Artifact Inventory:

Surface:

1 Basalt flake

Subsurface:

Test pit 1:

4 Basalt flakes

Test pit 2:

1 Gray chert flake

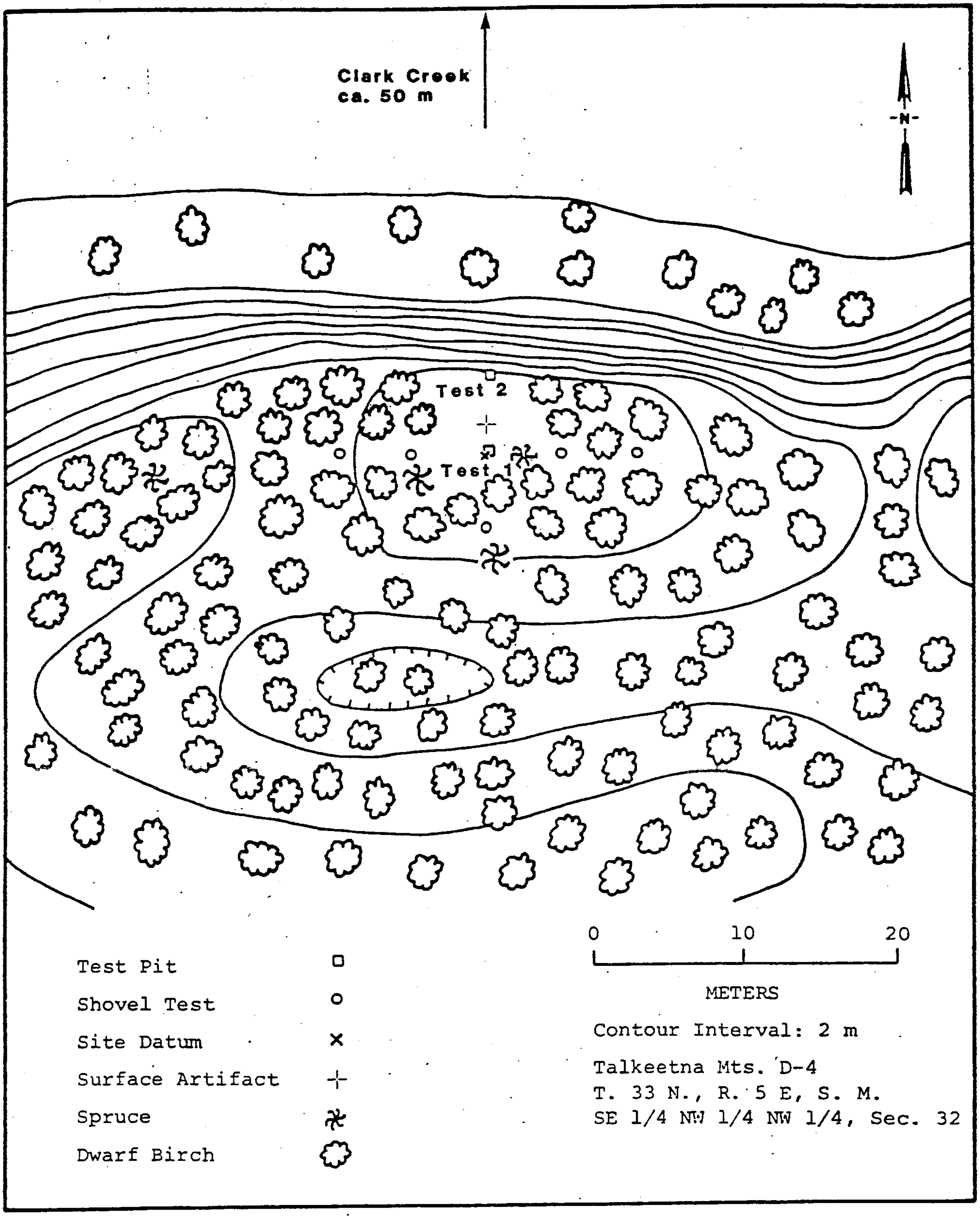


Figure 3.45. Site Map TLM 203.

AHRS Number TLM 204, Accession Number UA83-216

Area: Ca. 6 km Northeast of the Confluence at Goose Creek and Susitna River, Survey Locale 157

Area Map: Figure A.7; Survey Locale Map: Figure A.123

USGS Map: Talkeetna Mts. C-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 473750 Northing 6951900

Latitude 62°41'52" N., Longitude 147°30'45" W.

T. 30 N., R. 10 E., Seward Meridian
Sec. 11, SE¼SE¼SE¼

Site Map: Figures 3.46, 3.47

Setting: This is an historic site which was probably last occupied in the late 1950's. It is located on an unnamed creek on the south side of the Susitna River. It is approximately 6 km northwest of the mouth of Goose Creek on a terrace ca. 671 m asl (2200 feet) and about 30 m above the present level of the Susitna River. TLM 204 is on the east bank of the creek and about one-quarter of a mile from the Susitna River. The terrace on which the site is located extends approximately 60 m in an east-west direction and approximately 150 m in a north-south direction. The ecosystem for the site area is generally characterized as lowland spruce-hardwood. Vegetation on the site includes black spruce, white spruce, dwarf birch, blueberry, Labrador tea, lowbush cranberry, bear-berry, lichens, and moss. Dwarf birch tends to predominate on the site area. The vegetation in the surrounding area contains the same species types with the addition of birch and grasses.

Reconnaissance Testing: A wide variety of historical and contemporary artifacts were observed on the ground surface over a 70 m x 70 m area. In addition to the artifact scatter, five discrete loci were observed and given feature designations. Two of the features were investigated with the removal of 40 cm x 40 cm test pits. Test pit 1 was excavated in feature A and test pit 2 was excavated in feature B. Neither of the two test pits produced cultural material. No artifacts were collected from the surface of the site but many were observed. Some of the observed artifacts included a coffee pot, metal cowling for a heater, evaporated milk cans, Hills Brothers Coffee cans, Rainer Beer cans, glass Clorox bottles, a quart oil can, boards, cut logs, and 55-gallon drums.

Collected Artifact Inventory:

None

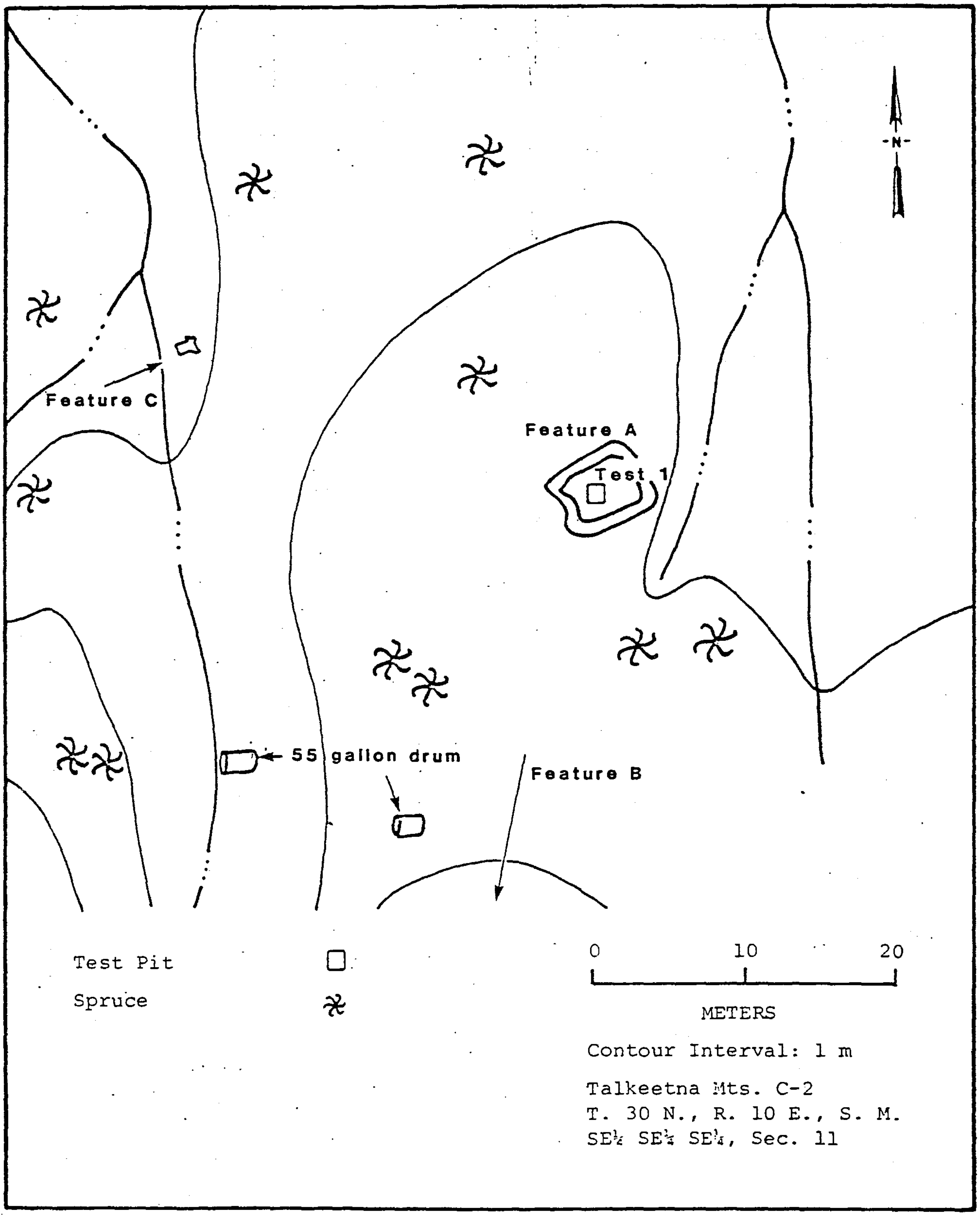


Figure 3.46. Site Map TLM 204, North Half.

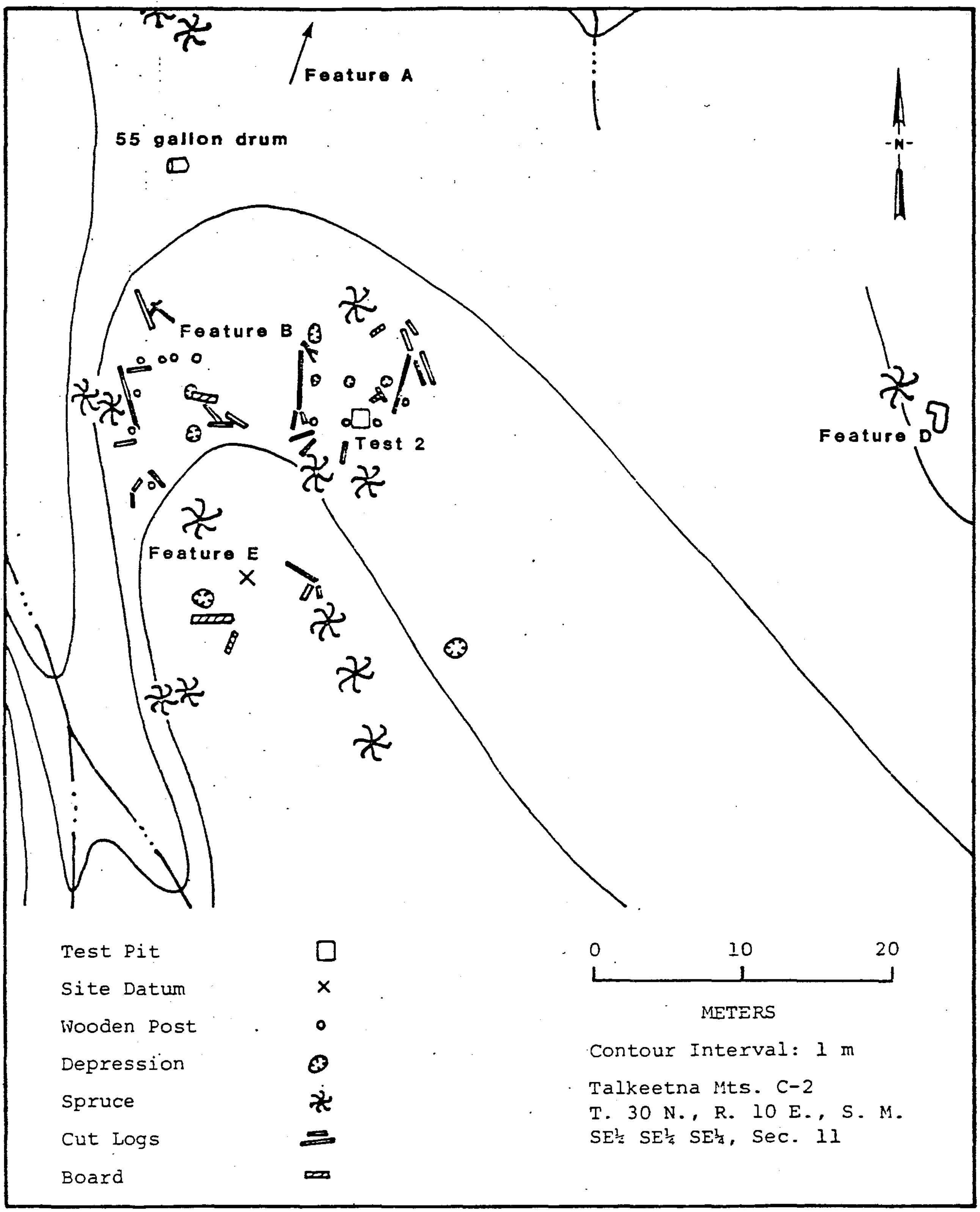


Figure 3.47. Site Map TLM 204, South Half.

AHRS Number TLM 205, Accession Number UA83-217

Area: Ca. 25 km Northeast of Watana Creek Mouth
Area Map: Figure A.4; Site Location Map: Figure A.51
USGS Map: Talkeetna Mts. D-2, Scale 1:63,360

Site Location: UTM Zone 6 Easting 455600 Northing 6976000

Latitude 62°54'45" N., Longitude 147°52'20" W.

T. 33 N., R. 8 E., Seward Meridian
Sec. 35, NE¼NE¼NE¼

Site Map: Figure 3.48

Setting: The site is located ca. 1000 m asl (3281 feet) on the summit of a prominent rounded knoll on the south Watana Creek valley wall in the upper portion of the Watana Creek drainage ca. 25 km northeast of the Watana Creek mouth. The knoll summit is ca. 30 m (north-south) by 40 m (east-west) and relatively flat. The slopes of the knoll, which vary between 20 degrees and 30 degrees in steepness, descend ca. 30 m to the west to a small stream, and to the north where the knoll slope merges with the general slope of the valley wall. To the south, the knoll slope descends ca. 20 m before intersecting the southward rising valley wall slope. To the east, the knoll slope is more gradual and merges with the valley wall ca. 15 m below and ca. 50 m east. A view from the site includes ca. 12 km of upper Watana Creek valley from the west to the northeast, and the facing slopes of high elevation terrain on the other side of the creek up to ca. 4 km to the north. In addition, views up and down the Watana Creek valley of more than 10 km are available from the site. To the southwest, south, and east, the slopes of the south valley wall are visible within 1 km to 4 km, rising to ca. 600 m above the site. A small ca. 1.5 hectare lake is located ca. 2 km southeast of the site on a break in slope of the valley wall, but it is not visible from the site.

A mineral lick, located ca. 300 m southwest and at approximately the same elevation as the site on the other side of the small stream, on a steep (30-degree) northeast-facing slope, is visible from the site. Very well marked game trails leading to the lick, and a number of Dall sheep were observed on the mineral lick. Vegetation on the site is sparse alpine tundra, with patches of lichen and bearberry interspersed with barren frost-shattered rock areas. Vegetation of the surrounding slopes is similar, but includes dwarf birch and grass in nearby drainages with willow and spruce thickets present on the Watana Creek valley floor.

Reconnaissance Testing: Reconnaissance testing was initiated when a game biologist observing the mineral lick found a basalt scraper fragment (UA83-217-1, Figure 3.66c). Two following visits by project personnel during which surface reconnaissance and subsurface testing consisting of eight shovel tests and a test pit were conducted, but no further cultural material was found.

Collected Artifact Inventory:

1 Basalt scraper fragment

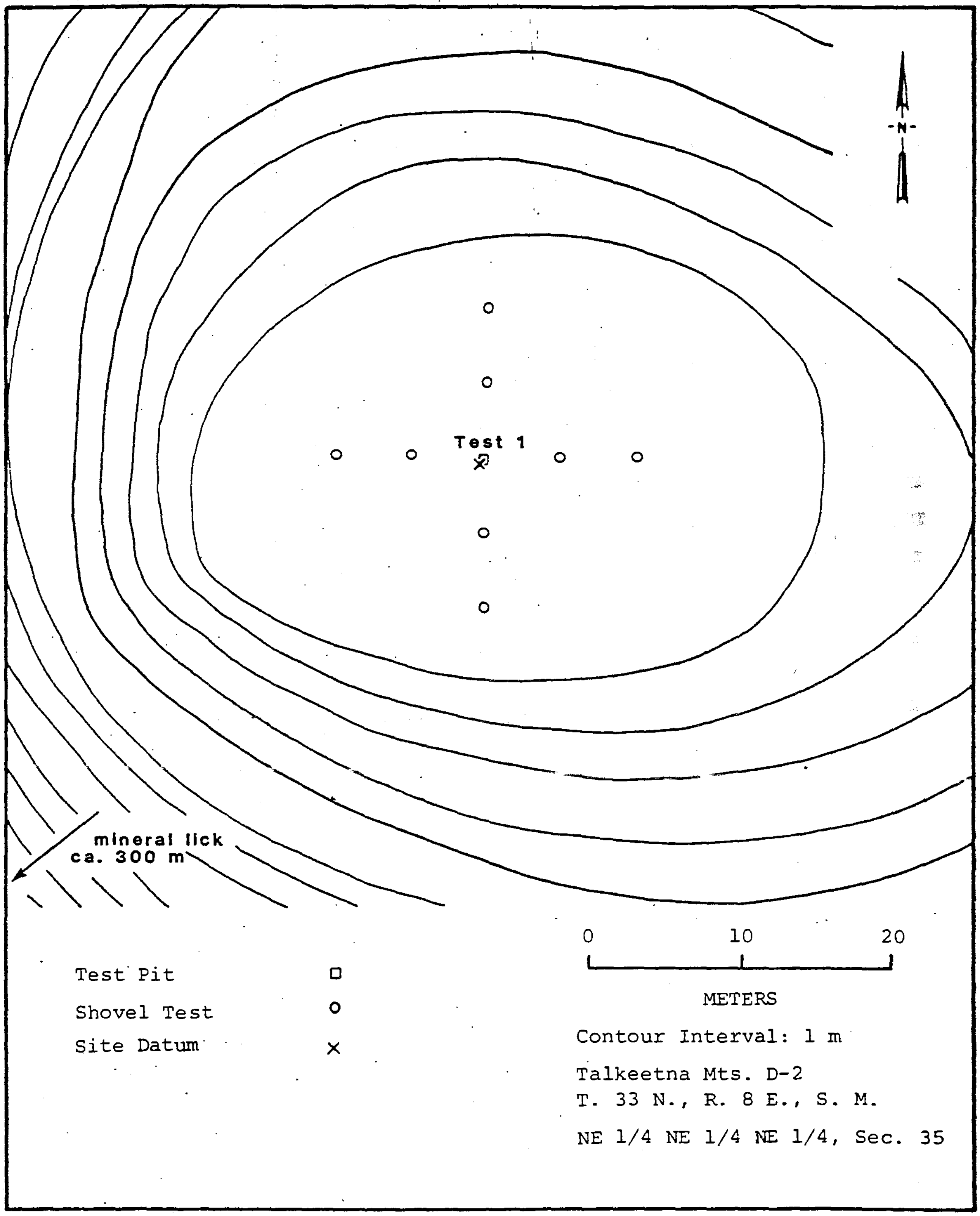


Figure 3.48. Site Map TLM 205.

AHRS Number TLM 206, Accession Number UA83-218

Area: Ca. 500 m South-southeast of the Oshetna River Mouth, Survey Locale 124

Area Map: Figure A.8; Survey Locale Map: Figure A.75

USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 480720 Northing 6945050

Latitude 62°38'15" N., Longitude 147°22'29" W.

T. 29 N., R. 11 E., Seward Meridian

Sec. 3, SW¼NE¼NW¼

Site Map: Figure 3.49

Setting: TLM 206 is located at an elevation of ca. 620 m asl (2040 feet) atop the southwest facing edge of a relict boulder-paved riverbank ca. 500 m south-southeast of the confluence of the Oshetna and Susitna rivers, near a point of inflection where the orientation of the relict riverbank changes direction from southeast-northwest to south-southeast, north-northwest. The point of inflection is ca. 6 m higher than the adjacent modern floodplain to the southwest. The site occurs ca. 15 m southeast of this point. To the southeast, the relict riverbank continues ca. 120 m, gradually decreasing in relief and definition. To the north-northwest from the point of inflection, the relict riverbank continues ca. 100 m, gradually decreasing in height and merging with the modern riverbank. The relict riverbank defines the southern and western edges of a gently northward-sloping terrace which merges with the Susitna floodplain to the north. The site is located ca. 100 m east and 150 m north of the present Oshetna River channel, which describes an arc around the site. The site appears to be oriented toward the Oshetna River and its floodplain to the south and southeast. The continuation of the Oshetna valley and its ca. 120 m high valley walls are also visible in these directions for a distance of ca. 2 km to the west, the Susitna valley wall and associated prominences are visible for a distance of ca. 1.5 km across the Oshetna River. To the east, the east Oshetna valley wall can be seen rising to the western margin of a terrace (ca. .5 km distant), which occurs about halfway up the valley wall and contains a 2-hectare and a 6-hectare lake. Vegetation on the site is lowland spruce forest with scattered spruce, dwarf birch thickets, and lichen ground cover with spagnum and Labrador tea. The relict riverbank slope is marked by numerous exposed boulders with vegetation mat and occasional small surface exposures between them. The floodplain below the site is black spruce bog.

Reconnaissance Testing: A surface lithic scatter consisting of 2 gray chert flakes was observed in a small exposure near the top of the relict riverbank. A test pit (test pit 1) was placed in the vegetation mat immediately upslope from the surface scatter. One flake of a coarse brown material was the only lithic material found in test pit 1. Ten additional shovel tests along the edge and in the interior of the terrace near test pit 1 failed to produce subsurface material.

Collected Artifact Inventory:

Surface:

2 Gray chert flakes

Subsurface:

1 Flake, coarse brown material

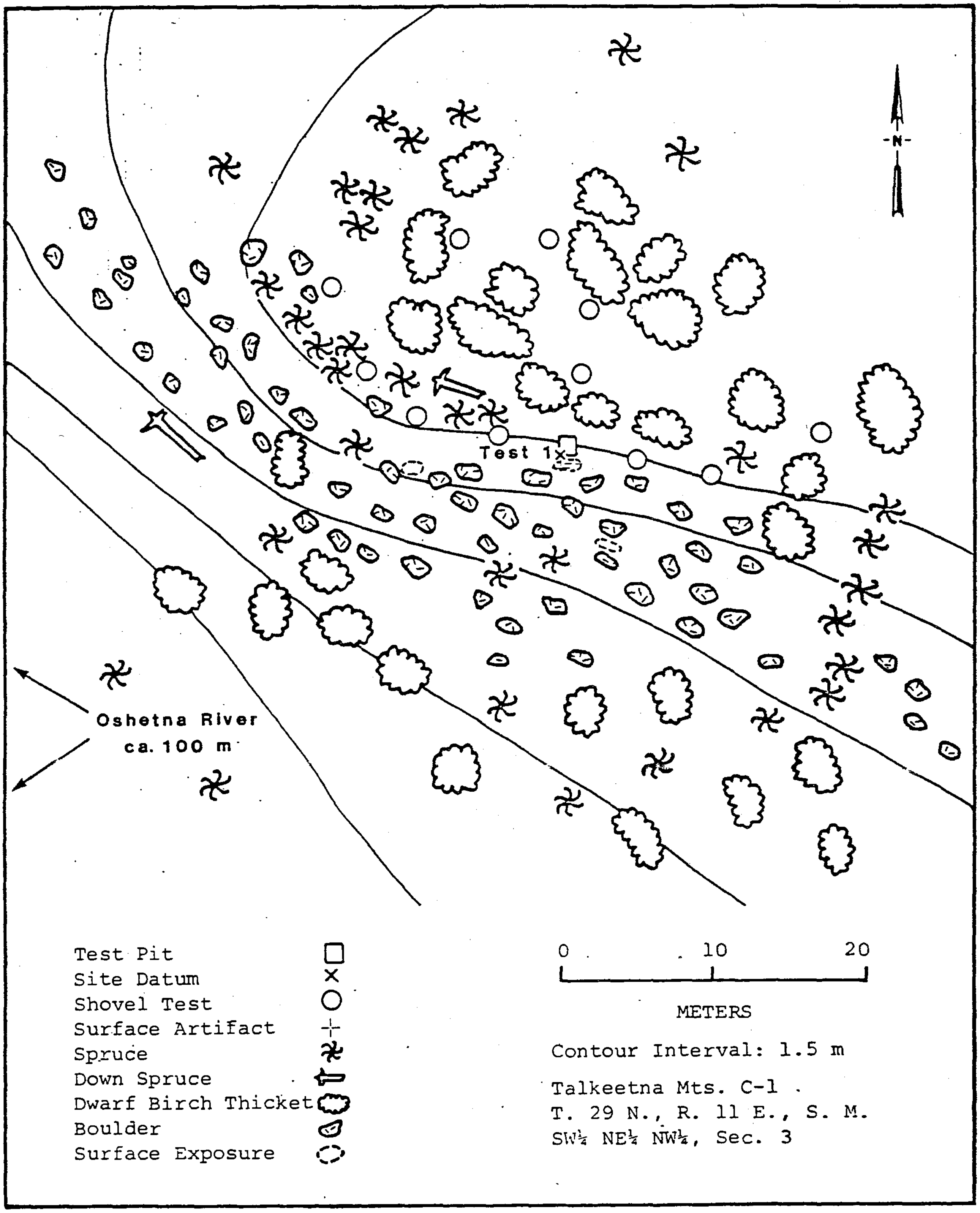


Figure 3.49. Site Map TLM 206.

AHRS Number TLM 207, Accession Number UA83-219

Area: Ca. 1.1 km South-southeast of the Mouth of the Oshetna River Mouth, Survey Locale 124

Area Map: Figure A.8; Survey Locale Map: Figure A.75

USGS Map: Talkeetna Mts. C-1, Scale 1:63,360

Site Location: UTM Zone 6 Easting 481220 Northing 6944600

Latitude 62°37'59" N., Longitude 147°21'55" W.

T. 29 N., R. 11 E., Seward Meridian

Sec. 3, SE¼SW¼NE¼

Site Map: Figure 3.50

Setting: The site is located ca. 1.1 km south-southeast of the Oshetna River mouth at an elevation of ca. 677 m asl (2220 feet) on the southwestern margin of a continuous ca. 400 m long north-south oriented ridge. The western margin of the ridge is defined by a ca. 20 degree boulder-paved slope which descends ca. 10 m to more gradual slope which merges with the Oshetna River floodplain ca. 100 m west of the site. The Oshetna River describes an area around the site from the south southwest to the north northwest at a distance of ca. 200 m, ca. 30 m below. The crest of the ridge is broad and flat. The east side of the ridge descends gradually into a lacustrine relict channel which forms a major terrace between the present Oshetna River floodplain and the top of the east Oshetna valley wall. The east slope of the ridge is obscured by vegetation and barely perceptible from the site. The north end of the ridge, where TLM 075 is located ca. 300 m from TLM 208, is separated by a small saddle from a continuation of the ridge to the mouth. The southern end of the ridge, beyond the site location undergoes a slight change in orientation and gradually loses elevation, ending ca. 100 m south-southeast of the site with the outlet drainage of the larger of the two lakes from the relict channel to the Oshetna River. The two lakes in the relict channel include a ca. 2 hectare lake to the northeast which drains into the Susitna and the ca. 6 hectare lake located ca. 300 m east of the site, but neither are visible from the site. The site appears to be primarily oriented to the Oshetna River which is close and easily accessible. The boulder paved west slope of the site ridge may be a relict riverbank, suggesting that the river may have been closer to the site in the past. View from the site includes the Oshetna River valley walls to the south (upstream) for a distance of 1 km to 2 km to the west ca. 750 m, and the continuation of the valley wall above the relict channel to the east ca. 500 m distant. Adjacent sections of the Oshetna River and floodplain are also visible from the site. The Oshetna River is rapid and bending, with gravel bars, near the site. Site vegetation is woodland black spruce with dwarf birch thickets and an understory including Labrador tea and lichens. Some frost boil cracks are present, but otherwise surface exposures are limited. Vegetation in adjacent well-drained areas is similar, with black spruce bog and grassy marsh areas on the Oshetna floodplain to the west and around the lakes to the east.

Reconnaissance Testing: Surface reconnaissance of the ridge revealed two basalt surface flakes on and sticking out of the lichen mat. A test pit was placed adjacent to the surface flakes (test pit 1), revealing a subsurface flake scatter in the surface organic mat and humic layer. Only one flake was recovered from the underlying Devil tephra unit, and no other cultural material was found in test pit 1. A shovel test placed 10 m north of test pit 1 produced 2 flakes and 2 microblade fragments. The shovel test was expanded into a test pit (test pit 2), which produced a subsurface lithic scatter with flakes, microblades, and microblade fragments (Figure 3.66d, 1-26), which were all found in or in close association with a granular grayish brown matrix which was stratigraphically below the Watana tephra unit. In the northeastern corner of test pit 2 the cultural unit was encountered at the base of the organic mat, clearly as a result of its extrusion through overlying stratigraphic units by frost action. However, the unit is clearly the source of the microblade component, it is continuous and has clear contacts although it is somewhat disturbed by frost action, and stratigraphically below the Watana tephra. The lithics were dispersed throughout the cultural unit; no concentration at either upper or lower contacts was observed. The stratigraphic unit in test pit 1 corresponding to the cultural unit in test pit 2 did not produce cultural material, however a thin whitish-tan stringer was observed in test pit 1 at the base of the Watana tephra unit and above the unit corresponding to the cultural unit in test pit 2, which may be Oshetna tephra, perhaps indicating a pre-Oshetna age for the microblade component, although the stringer was not observed in test pit 2. Five other shovel tests did not produce additional cultural material.

Collected Artifact Inventory:

Surface:

2 Basalt flakes

Subsurface:

Test pit 1:

110 Basalt flakes
1 Chalcedony flake

Test pit 2:

34 Chert flakes
3 Microblades
40 Microblade fragments

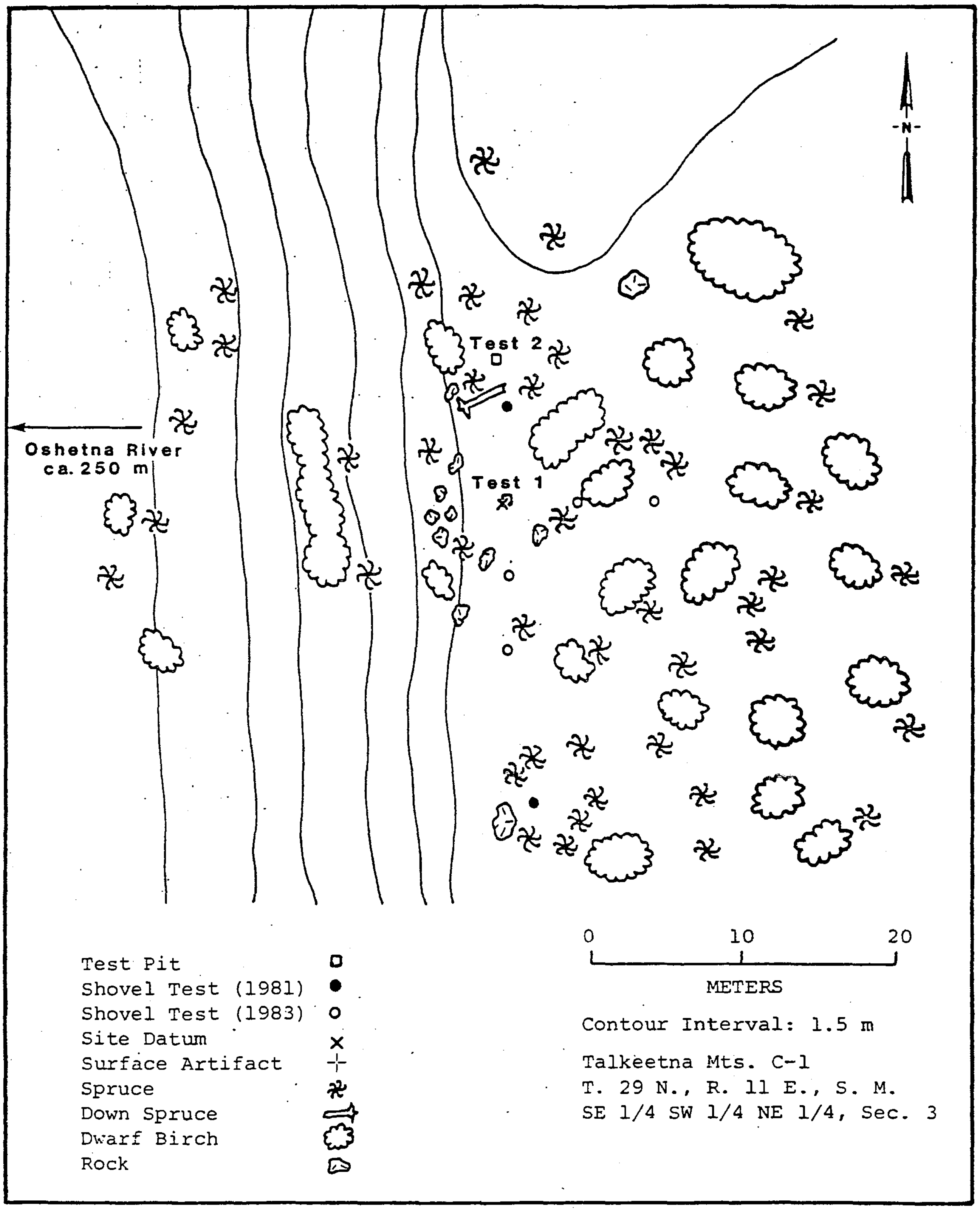


Figure 3.50. Site Map TLM 207.

AHRS Number TLM 208, Accession Number UA83-220

Area: Ca. 150 m East of Watana Lake

Area Map: Figure A.6; Site Location Map: Figure A.52

USGS Map: Talkeetna Mts. C-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 446950 Northing 6956400, Locus A
UTM Zone 6 Easting 447480 Northing 6957350, Locus B
UTM Zone 6 Easting 446940 Northing 6956200, Locus C

Latitude 62°44'08" N., Longitude 148°02'14" W., Locus A
Latitude 62°44'07" N., Longitude 148°01'36" W., Locus B
Latitude 62°44'05" N., Longitude 148°02'15" W., Locus C

T. 31 N., R. 8 E., Seward Meridian

Sec. 31,	NE¼SW¼NW¼	- Locus A
	NW¼SW¼NE¼	- Locus B
	SE¼SW¼NW¼	- Locus C

Site Map: Figures 3.51, 3.52, 3.53

Setting: The site consists of three loci, locus A, B and C, located 200 m, 800 m and 160 m east of the north end of Watana Lake respectively. Locus A is on the summit and upper slopes of a ca. 105 m high knoll adjacent to the northeast margin of Watana Lake, at an elevation of ca. 1035 m asl (3396 feet). The knoll, which is by far the point of highest relief on the gradually eastward sloping plateau defined by Watana Lake, its outlet stream, and the Susitna and Kosina valleys, has a broad, flat summit of approximately 80 m north-south x 40 m east-west. The south end of the summit is its highest point; to the north, the summit area slopes gently (ca. 1-2 degrees) before reaching the relatively steep (ca. 15-30 degrees) sides of the knoll. Locus C is located on a benchlike break in slope on the lakeward face of the ridge forming the south end of the knoll, ca. 225 m south of the Loucs A datum. Terrain around the knoll is dominated by Watana Lake (ca. 140 hectares) to the west and Watana Mountain on the west shore of the lake, and by relatively low-relief eastward sloping terrain to the south, east, and north, upon which a number of 5-10 m high knolls and ridges occur as well as several small lakes and ponds within 1.5-3 km from the site. However, Locus C is primarily oriented toward Watana Lake to the east. Locus B is located on the north end of an east-west oriented low ridge which is visible from Locus A at a distance of ca. 650 m and an azimuth of 96°. The Locus B site ridge is typical of the low-lying ridges on the plateau, with a broad rounded crest and several discrete knoll-like irregularities; the west facing slope is of much less relief than the east slope relative to surrounding terrain owing to the overall eastward slope of the plateau. While Locus A commands a panoramic view of adjacent terrain in all directions for a distance of ca. 2-4 km, the view from Locus B is primarily limited to an easterly and southerly view encompassing the plateau to the margins of the Kosina Creek and Susitna River canyon, with views to the west and north obstructed by rising irregular terrain within 150 m, although the summit of the Locus A knoll is visible.

Locus A site vegetation consists of thin tundra mat interspersed with often extensive deflated surface exposure. The sides of the knoll and the terrain adjacent to its base and the shores of Watana Lake have birch shrub vegetation. Locus C has deflated areas with sparse tundra patches and some birch shrub. The facing slope of Mount Watana is unvegetated scree above ca. 200 m above the lake. In other directions beyond ca. 1.5 km, spruce trees occur in drainages and around small lakes, increasing in frequency toward the lower margins of the plateau. Locus B site vegetation consists of discontinuous upland tundra interspersed with deflated areas, with grasses and dwarf birch thicket occurring in surrounding less exposed areas.

<u>Reconnaissance Testing</u>: Locus A, which was located by project personnel assisting in the relocation of Alaska Fish and Game equipment, consists of an extensive but diffuse lithic scatter over the summit and upper slopes of the knoll adjacent to Watana Lake. Additional surface reconnaissance by a survey crew resulted in observation of additional lithic material during site recording. Diagnostic tools and a representative

sample of flakes were collected, but no subsurface testing was undertaken, although there is probably subsurface lithic material in areas with intact vegetation mat. Locus B consists of a surface lithic scatter found on a deflated area of a low ridge during a brief reconnaissance of the area to the east of Locus A. A return visit to TLM 208 resulted in the discovery of the Locus C scatter and the discovery of an additional surface diagnostic tool from Locus A. Locus C is a lithic scatter of ca. 5 m in minimum extent. A lanceolate basalt biface fragment and a representative sample of debitage were collected, again, no subsurface testing was conducted.

Collected Artifact Inventory:

Surface: (Locus A)

1 Brown chert asymmetric side-notched knife (UA83-220-27, Figure 3.67i)
1 White chert biface (UA83-220-5, Figure 3.67e)
1 Basalt projectile point (UA83-220-6, Figure 3.67f)
1 Basalt biface fragment (UA83-220-2, Figure 3.67b)
1 Milky quartz sidescraper (UA83-220-7, Figure 3.67g)
1 Pink-gray chert thermally altered endscraper (UA83-220-13, Figure 3.67h)
3 Obsidian endscrapers (UA83-220-1, 3, 4; Figure 3.67a, c, d)
1 Chert possible flake core
1 Basalt modified flake
14 Flakes of varous lithologies (11 material types)

Surface: (Locus B)

1 Brown chert possible flake core
1 Blue-gray argillite flake

Surface: (Locus C)

1 Basalt point base
2 Basalt flakes
2 White argillite flakes
1 Gray chert flake

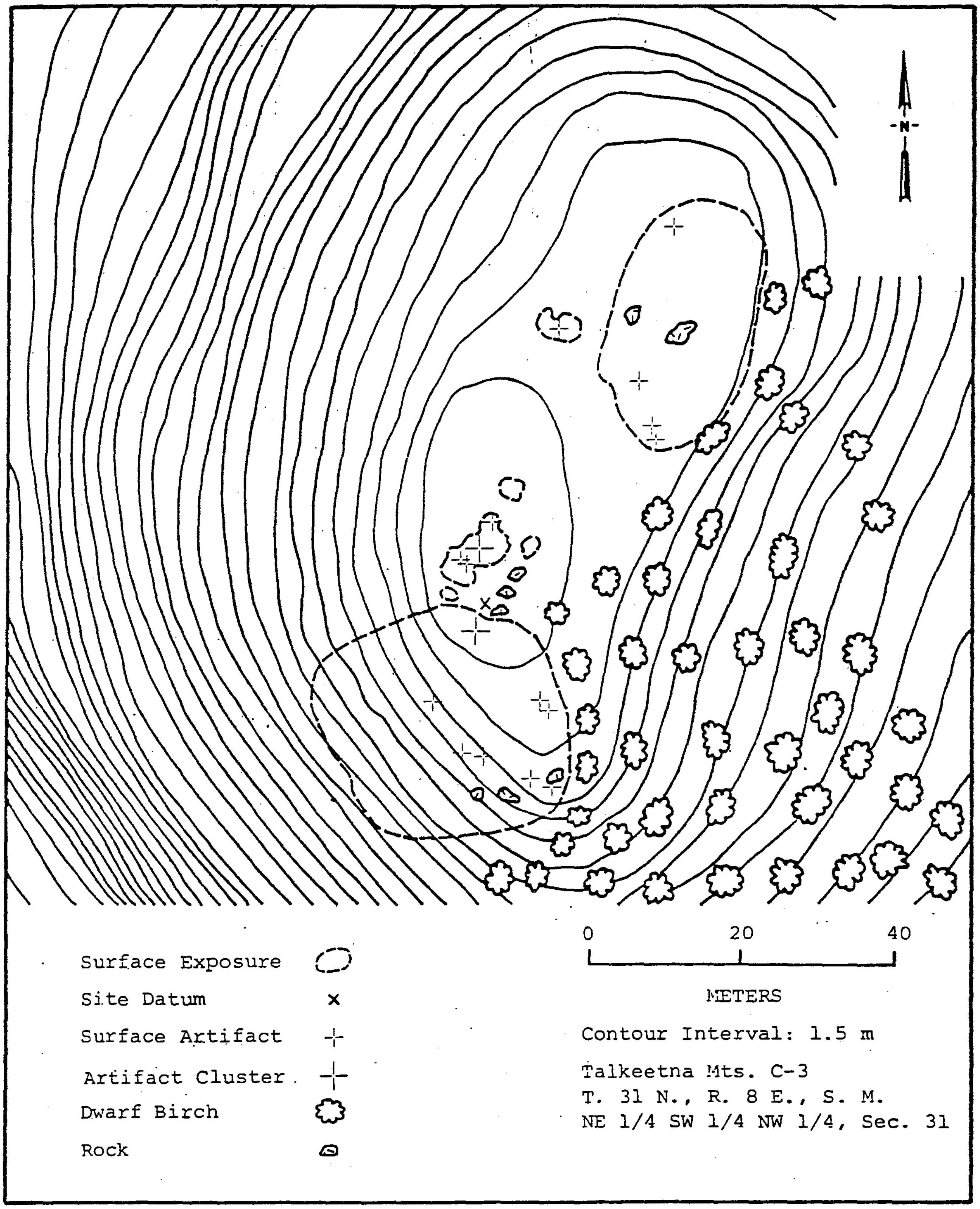


Figure 3.51. Site Map TLM 208, Locus A.

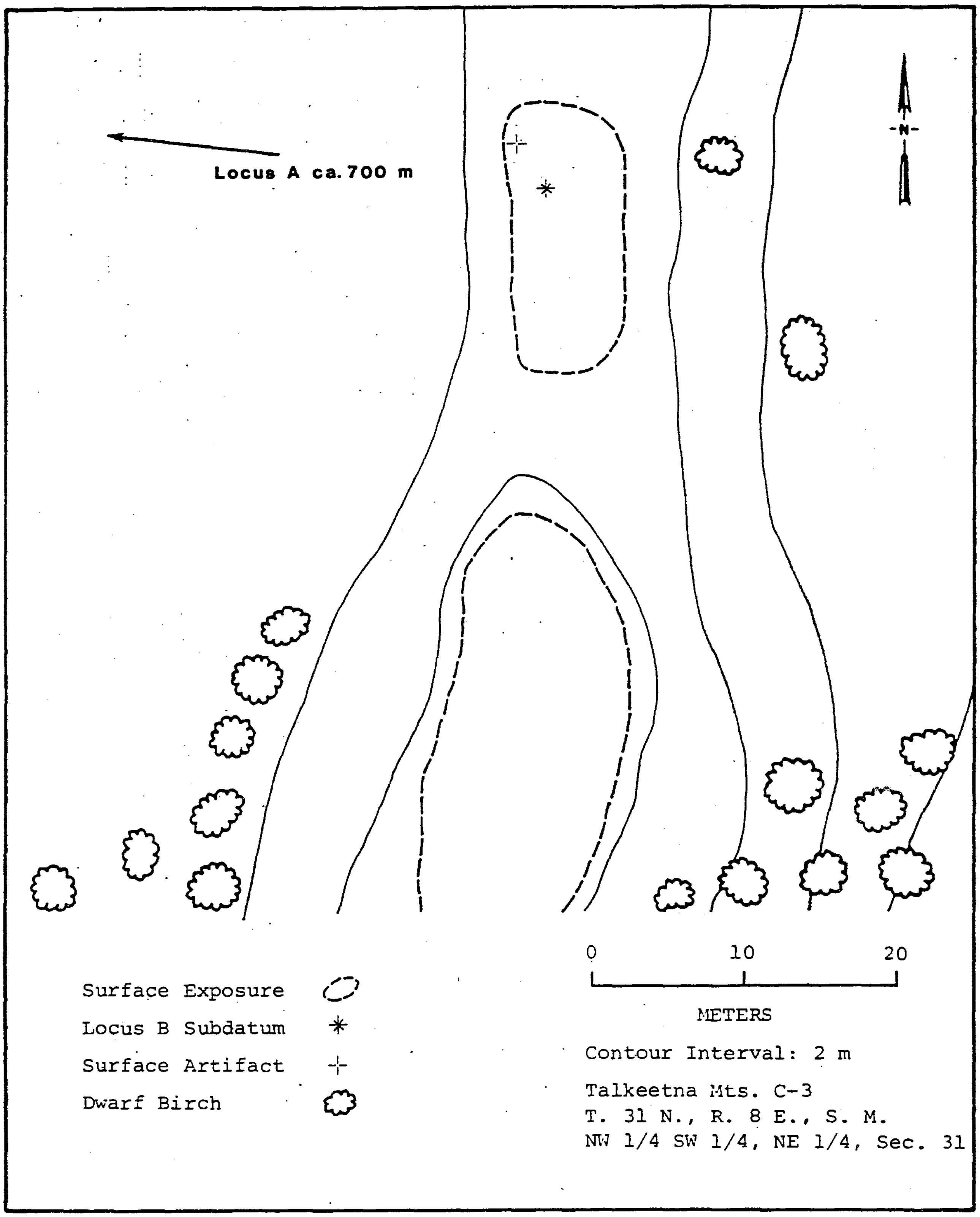


Figure 3.52. Site Map TLM 208, Locus B.

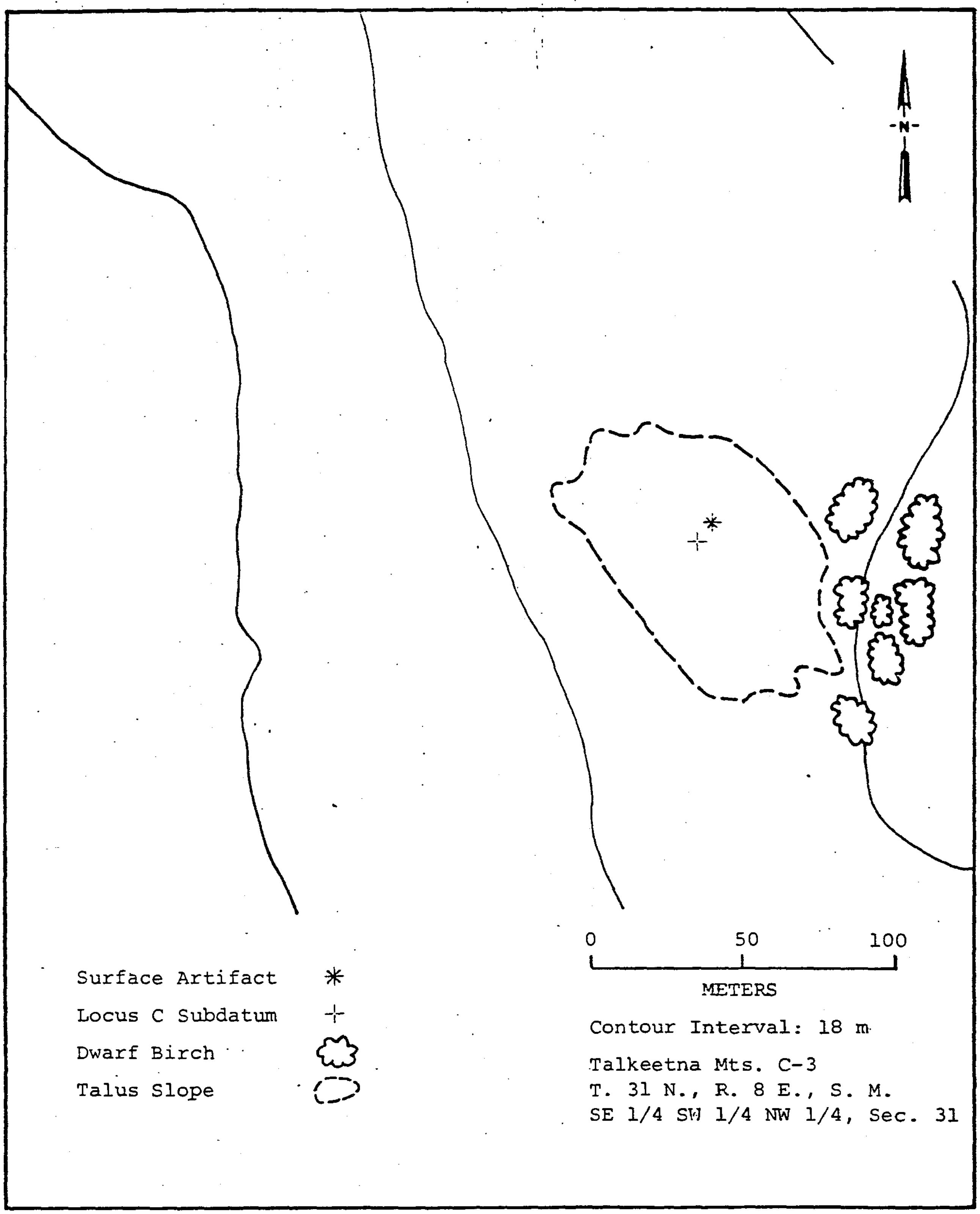


Figure 3.53. Site Map TLM 208, Locus C.

AHRS Number TLM 209, Accession Number UA83-221

Area: Ca. 120 m East of Tsusena Creek and 700 m Northeast of the Confluence of Clark Creek and Tsusena Creek, Proposed Borrow F

Area Map: Figure A.2; Location Map: Figure A.127

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 421300 Northing 6977200

Latitude 62°55'05" N., Longitude 148°33'00" W.

T. 33 N., R. 5 E., Seward Meridian

Sec. 29, SW¼NW¼SE¼

Site Map: Figure 3.54

Setting: TLM 209 is located ca. 120 m east of Tsusena Creek on the western flake of Tsusena Butte at ca. 732 m asl (2400 feet). The site is situated on a small north-south oriented knob at the western end of an east-western trending ridge. There are a series of these ridges north of TLM 209. TLM 210 and TLM 211 are ca. 600 m and 700 m, respectively, northeast of 209 on a larger east-west trending bedrock ridge. To the north, between the ridge systems, is a wide valley filled with high brush, mainly dwarf birch. It also contains a small, thickly vegetated stream channel and a boulder field. To the west the ridge system slopes steeply, approximately 22 degrees, downward to the Tsusena Creek valley. The site location affords an excellent view of Tsusena Creek valley, especially to the south and west. The confluence of Tsusena Creek and Clark Creek is ca. 700 m southeast of the site but is obscurred by the stands of spruce trees in the valley bottom. To the east the ridge slopes upward very gently for ca. 100 m to the walls of Tsusena Butte. The site itself is vegetated by mosses and lichens, with surface exposures north and east of the datum. Exposed rocks are also apparent. Elsewhere on the knoll top and on the surrounding terrain, the vegetation consists of mosses, lichens, blueberries, dense clumps of dwarf birch and scattered spruce trees.

Reconnaissance Testing: TLM 209 was represented by surface and subsurface flakes. Four flakes were recovered from an exposure extending north and east of the site datum. Test pit 1 yielded four argillite flakes, one from the surface and three from the Devil tephra. Five shovel tests initiated to determine the limits of the site were sterile.

Collected Artifact Inventory:

Surface:

3 Argillite flakes
1 Quartzite flake

Test pit 1:

1 Argillite flake

Subsurface:

Test pit 1:

3 Argillite flakes

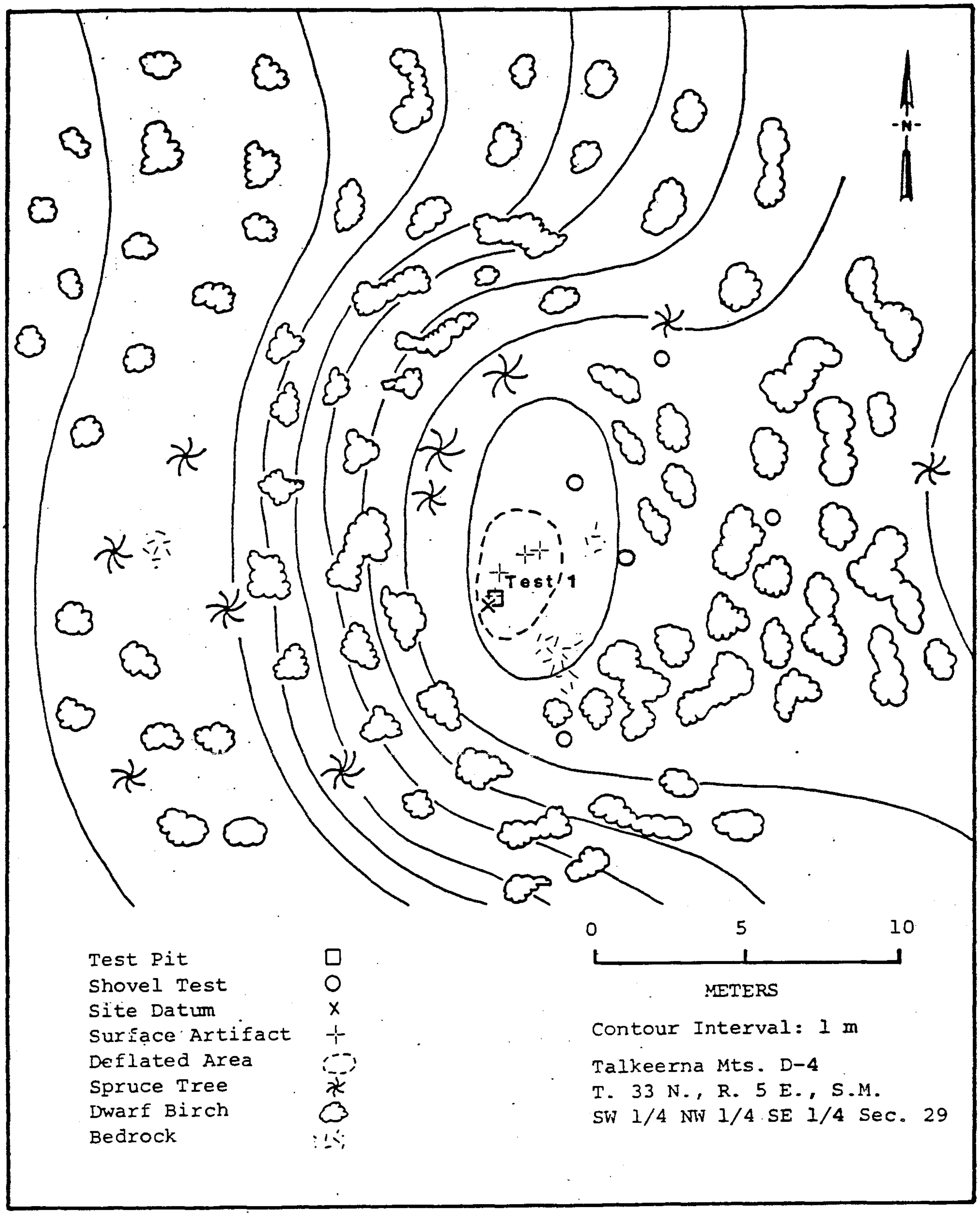


Figure 3.54. Site Map TLM 209.

AHRS Number TLM 210, Accession Number UA83-222

Area: Ca. 100 m East of Tsusena Creek and 1.3 km Northeast of the Confluence of Tsusena Creek and Clark Creek, Proposed Borrow F

Area Map: Figure A.4; Location Map: Figure A.127

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 421050 Northing 6977800

Latitude 62°55'25" N., Longitude 148°33'15" W.

T. 33 N., R. 5 E., Seward Meridian

Sec. 29, NW¼SE¼NW¼

Site Map: Figure 3.55

Setting: TLM 210 is located on a knob, at ca. 732 m asl (2400 feet), which is on the southern end of an east-west trending bedrock spur on the western side of Tsusena Butte. The knob, approximately 15 m (north-south) by 8 m (east-west), is situated on a north-south trending bedrock outcrop which continues for another 20 m, to the north-northwest. To the north lies a gully, ca. 3 m deep, that separates the knob with TLM 210 from the next knob, ca. 100 m to the north, where TLM 211 is located at approximately the same elevation. To the west and southwest the knob drops off very sharply and then continues at approximately 20 degrees to the Tsusena Creek, ca. 100 m west and 30 m below. To the south, the terrain descends into a fairly deep, wide ravine system that separates TLM 210 and TLM 209, which is situated on a knob ca. 600 m south-southeast. To the east, the bedrock ridge rises gently to meet the steep walls of Tsusena Butte, ca. 150 m away. TLM 210 is vegetated by lichens, mosses, blueberries, crowberries, lowbush cranberries, Labrador tea, dwarf birch and scattered spruce trees. Off the site, the vegetation is very similar although the moss mats and dwarf birch patches are denser. The view from the site is limited to the east by the flanks of Tsusena Butte and to the north by outcrops of the bedrock spur. The site affords an excellent view of the Tsusena Creek valley to the west and south. To the south, lies the southern flanks of Tsusena Butte and the Tsusena Creek valley with the Talkeetna Mountains in the background. The confluence of Clark Creek and Tsusena Creek lies ca. 1.3 km southwest of the site, but is obscured by spruce trees in the vicinity of the confluence. To the southeast the knolls with TLM 203, south of Clark Creek, and TLM 176, north of Clark Creek, are visible. If the vegetation were reduced to shrubs, then the confluence would be visible as well as TLM 202, located northwest of the confluence.

Reconnaissance Testing: TLM 210 contained one basalt flake, which was found on the lichen mat. A test pit (test pit 1) and nine shovel tests initiated to determine the site limits were sterile.

Collected Artifact Inventory:

Surface:

1 Basalt flake

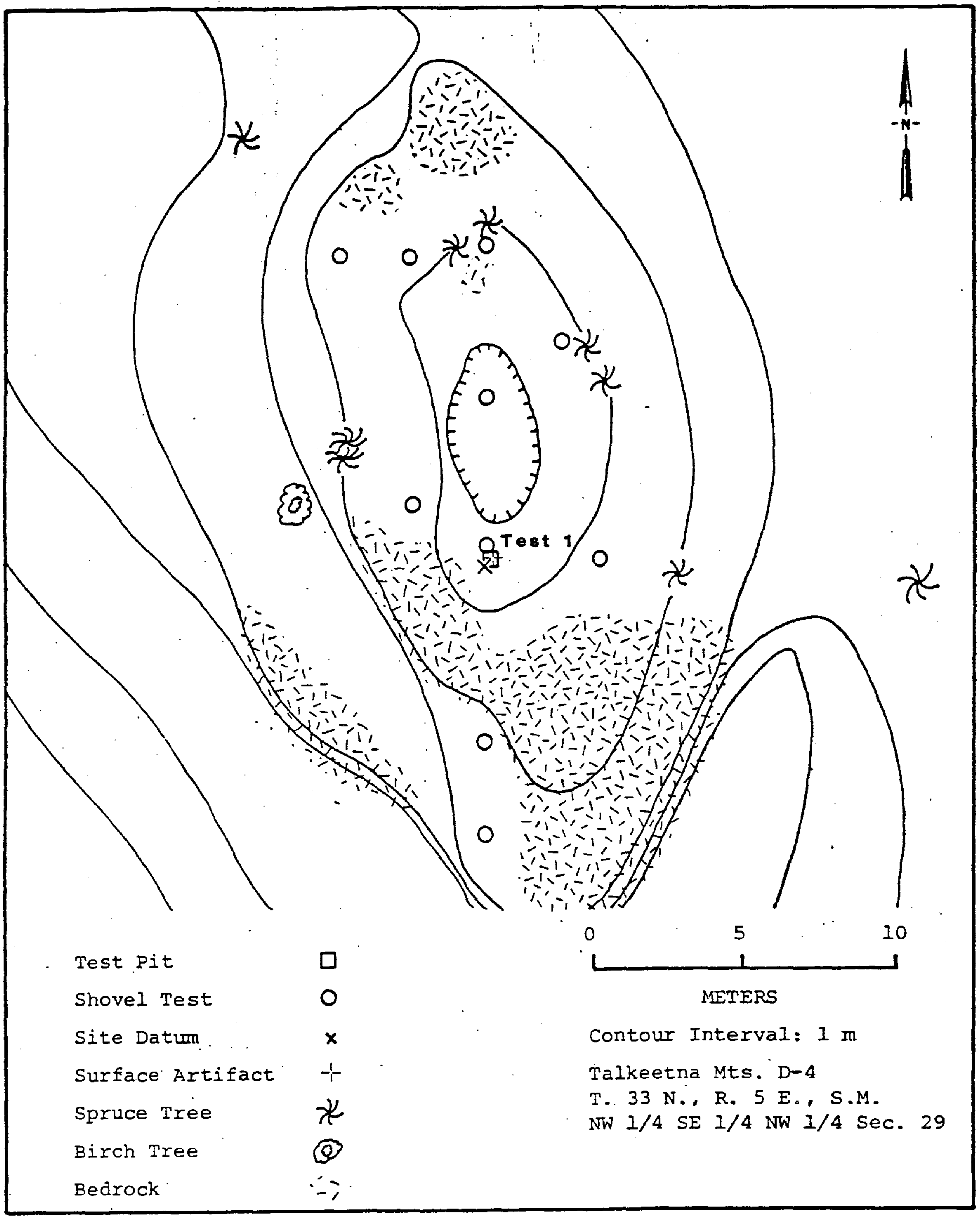


Figure 3.55. Site Map TLM 210.

AHRS Number TLM 211, Accession Number UA83-223

Area: Ca. 100 m East of Tsusena Creek and 1.4 km Northeast of the Confluence of Clark Creek and Tsusena Creek, Proposed Borrow C
Area Map: Figure A.2; Location Map: Figure A.127
USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 421050 Northing 6977900

Latitude 62°55'25" N., Longitude 148°33'15" W.

T. 33 N., R. 5 E., Seward Meridian
Sec. 29, NW¼SE¼NW¼

Site Map: Figure 3.56

Setting: TLM 211 is located on a knob ca. 732 m asl (2400 feet). It is one of a series of knobs located on an east-west trending bedrock spur on the west side of Tsusena Butte. The ovoid knob, approximately 6 m (north-south) by 3.5 m (east-west), is basically boulders mantled with sediments. TLM 211 is located on the northern one-third of this knob; the southern portion has very little soil deposition. To the east, the terrain rises gently for approximately 100 m until the spur encounters the walls of Tsusena Butte. Talus slopes of boulders are apparent upslope from the site. To the north and south are gullies which separate this outcrop from similar outcrops, which restrict the view. TLM 210 lies on a knob of the same elevation, ca. 100 m south. To the west TLM 211 affords a good view of the Tsusena Creek valley and the hills beyond it. To the southwest the upper terraces of Clark Creek are visible where TLM 203, south of Clark Creek, and TLM 176, north of Clark Creek, are located. Tsusena Creek is located ca. 100 m west of the site and ca. 30 m below the site. The site vegetation consists of lichens, scattered mosses, lowbush cranberries, blueberries, crowberries and spruce trees in the crevices of the bedrock. At the edge of the knoll top, approximately 4 m north and east of the datum, the moss thickens and there are dense thickets of dwarf birch. The areas around the site are covered by dense patches of dwarf birch shrubs and scattered spruce trees. There are many moss-covered boulders, at lower elevations, and lichen-covered bedrock outcrops in the vicinity. If the vegetation were reduced to shrubs, then TLM 202, located northwest of the confluence of Clark Creek and Tsusena Creek, and the confluence might be visible.

Reconnaissance Testing: TLM 211 was represented by subsurface cultural remains. Test pit 1 yielded twenty flakes (18 argillite and 2 quartzite) from the sod and two flakes (one each of argillite and quartzite) from the Watana tephra. Eight shovel tests initiated to determine the perimeters of the site were sterile.

Collected Artifact Inventory:

Subsurface:

19 Argillite flakes
3 Quartzite flakes

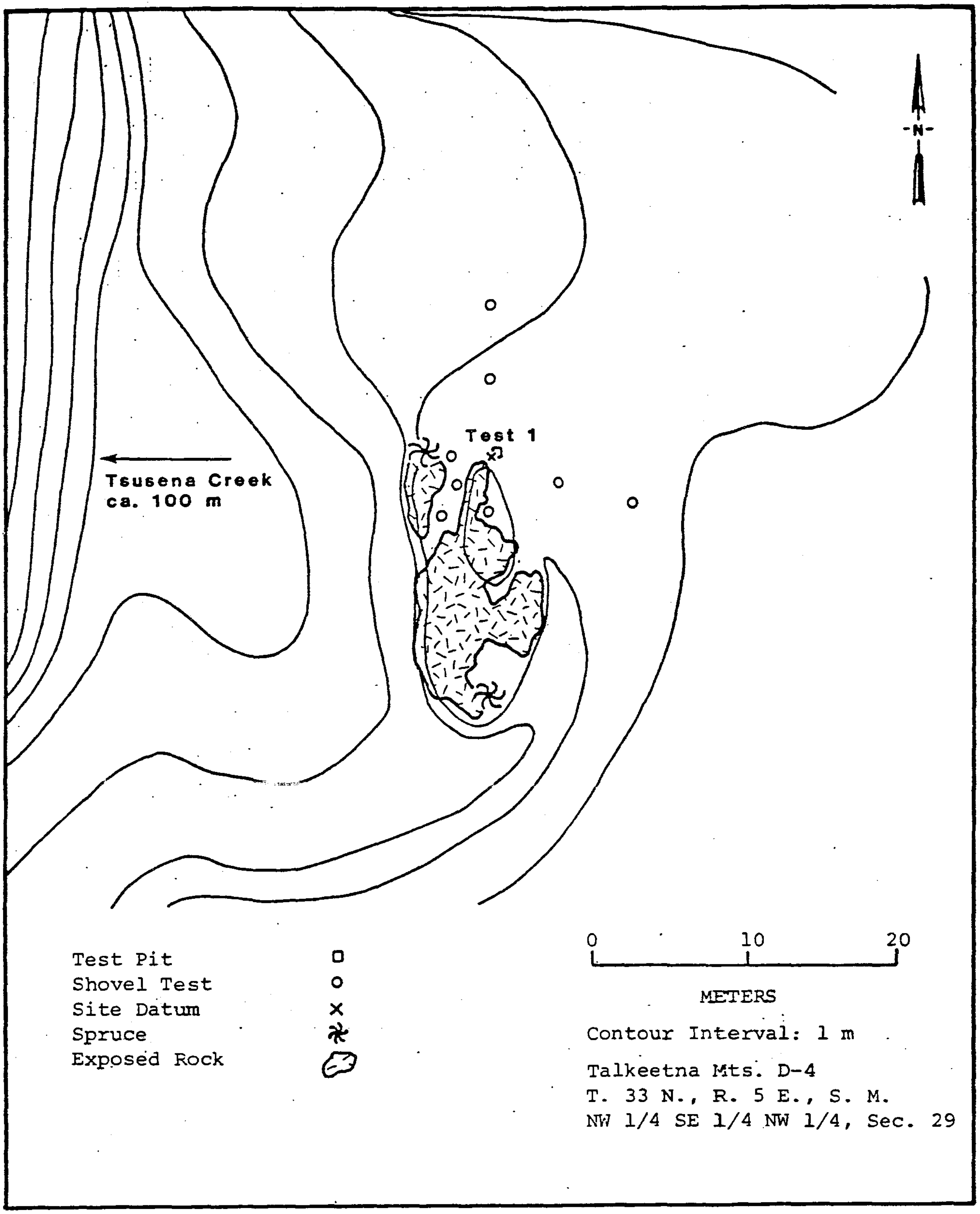


Figure 3.56. Site Map TLM 211.

AHRS Number TLM 212

Area: Ca. 7 m West of Tsusena Creek, 4.8 km South-southeast of the Confluence of Clark Creek and Tsusena Creek and 6.9 km Northeast of the Confluence of Tsusena Creek and the Susitna River, Proposed Borrow F

Area Map: Figure A.2; Location Map: Figure A.129

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 422400 Northing 6972000

Latitude 62°52'15" N., Longitude 148°31'30" W.

T. 32 N., R. 5 E., Seward Meridian

Sec. 9, SE¼SW¼SE¼

Site Map: Figures 3.57, 3.58

Setting: TLM 212 is a historic log cabin located on the western bank of the Tsusena Creek, ca. 4.8 km south-southeast of the confluence of Tsusena Creek and Clark Creek. The site is located on the flat, low vegetated floodplain at ca. 640 m asl (2100 feet), at a bend in the Tsusena Creek. The cabin is located near the apex of this floodplain, ca. 7 m southwest of the present creek channel. This location allows excellent access to the creek but provides a poor view of the area. The site is thickly vegetated. The ground cover consists of hummocky thick mosses (with a number of moss covered boulders), lichens, dwarf dogwood, fireweed, lowbush cranberries, blueberries and grasses. The lower canopy consists of rose bushes, and dwarf willows. The upper canopy consists of fairly dense stands of spruce trees. The relatively thick vegetation, especially the spruce trees, obscures the view in all directions, except to the northeast.

Reconnaissance Testing: The site consists of a single cabin with an associated scatter of historic debris. The cabin is a one-room, 4 m x 4 m structure built of unhewn, horizontal spruce logs with moss chinking. The corner joints are rounded to square notched and the logs extend past their point of intersection. The logs were saw-cut and the notches hand-hewn with an axe. The roof and upper portions of the walls have collapsed. The remaining logs stand approximately 1.25 m high. The roof planking has collapsed towards the southeast end of the cabin and consists of 28 cm x 2 cm (11 inches x 3/4 inch) milled planks. Patches of the sod roofing are still clinging to these planks.

Openings in the cabin include a small door, 1.25 m high x 80 cm wide, on the northeastern wall and a small vent, 18 cm high x 51 cm wide, north of the door on the same wall. The door is made of three rough-hewn planks and is still held shut by a single nail, which is near the upper left corner. The window or vent is located on the northern half of the northeast facing wall, next to the stove. It is approximately 25 cm above the ground surface and is held shut by a rough-hewn board which is nailed to the inside of the cabin wall.

The interior furnishings are obscurred for the most part by the collapsed roof planks and the thick vegetation growth on the inside of the cabin. A small 63 cm x 41 cm cast iron, two-lidded wood stove is located in the northeast corner of the cabin. The northeast corner of the cabin also has a number of nails placed in a shaved log. Metal bread pans, frying pan, cups and forks are visible in this corner. All the metal items were rusted.

There is a small depression along the northern wall of the cabin near the northwestern corner. It is approximately 1.3 m x 1.3 m by 50 cm deep and contained one badly rusted square metal cannister. A shovel test placed in the center yielded only sand.

The cabin is in poor condition. No cultural remains were collected at this site.

Observed Artifact Inventory:

1 Rusted 8 oz. can
1 Rusted, cast iron wood stove with two burner lids
1 Sled with metal runners and wooden frames
1 Rubber boot, poor preserved
1 Rusted 5 lbs. Wild Rose brand lard can
1 Rusted 5 lbs. Swifts and Company lard can
3 Rusted 20 lbs. square cans - no markings, presumably fuel cans
1 Wooden crate, marked "Swifts"
1 Rusted gray-blue granite enamelware basin
1 White enamelware basin
1 Rusted gray-blue granite enamelware coffee pot with attached lid
1 Leather boot, left foot
2 Rusted 116 Red Label Hills Bros. coffee cans
2 Rusted metal loaf pans
1 Rusted square cake pan
1 Rusted pressed metal frying pan
1 White enamelware cup
3 Rusted "bone" handled forks, sitting on stove
1 Badly rusted square cannister

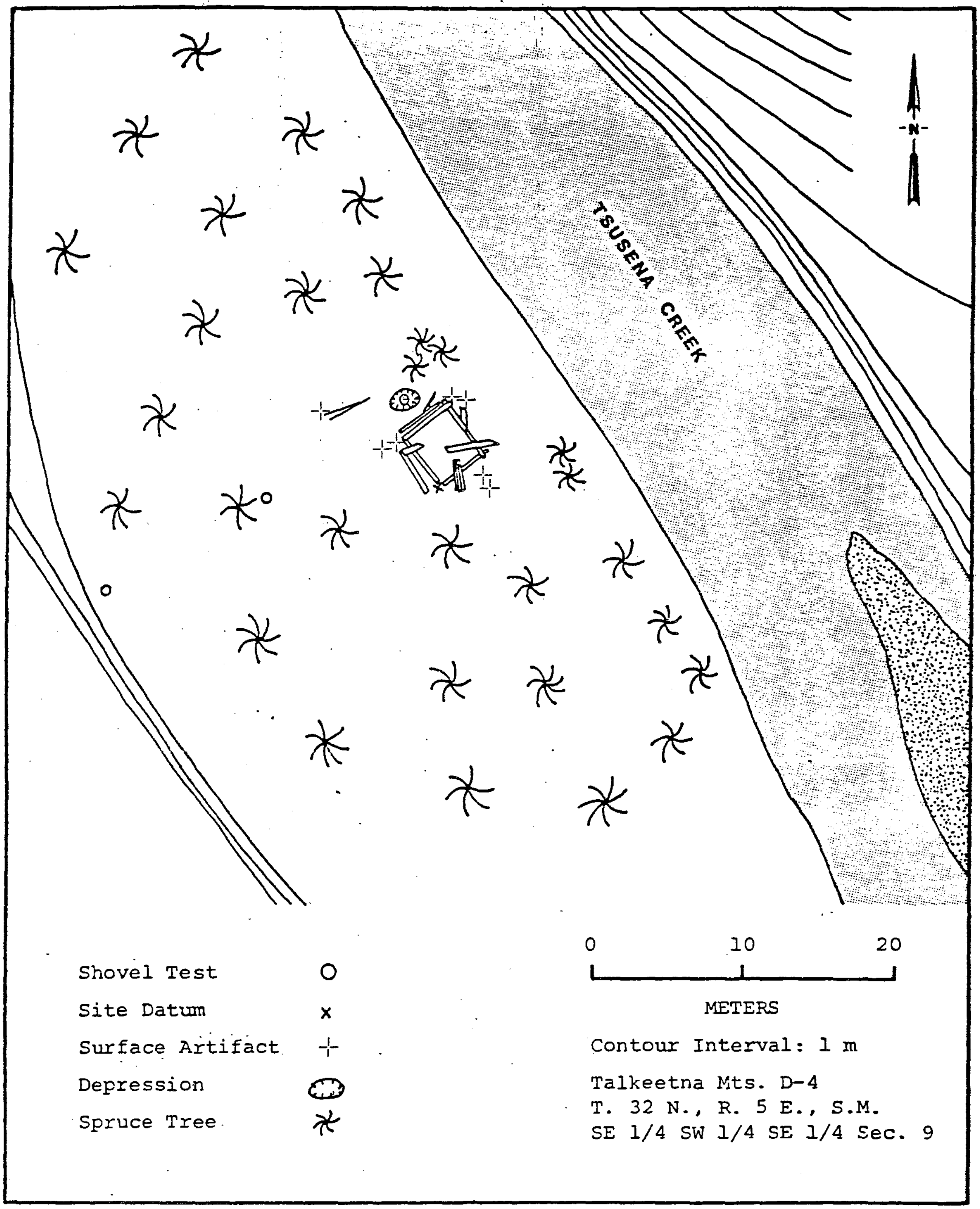


Figure 3.57. Site Map A TLM 212.

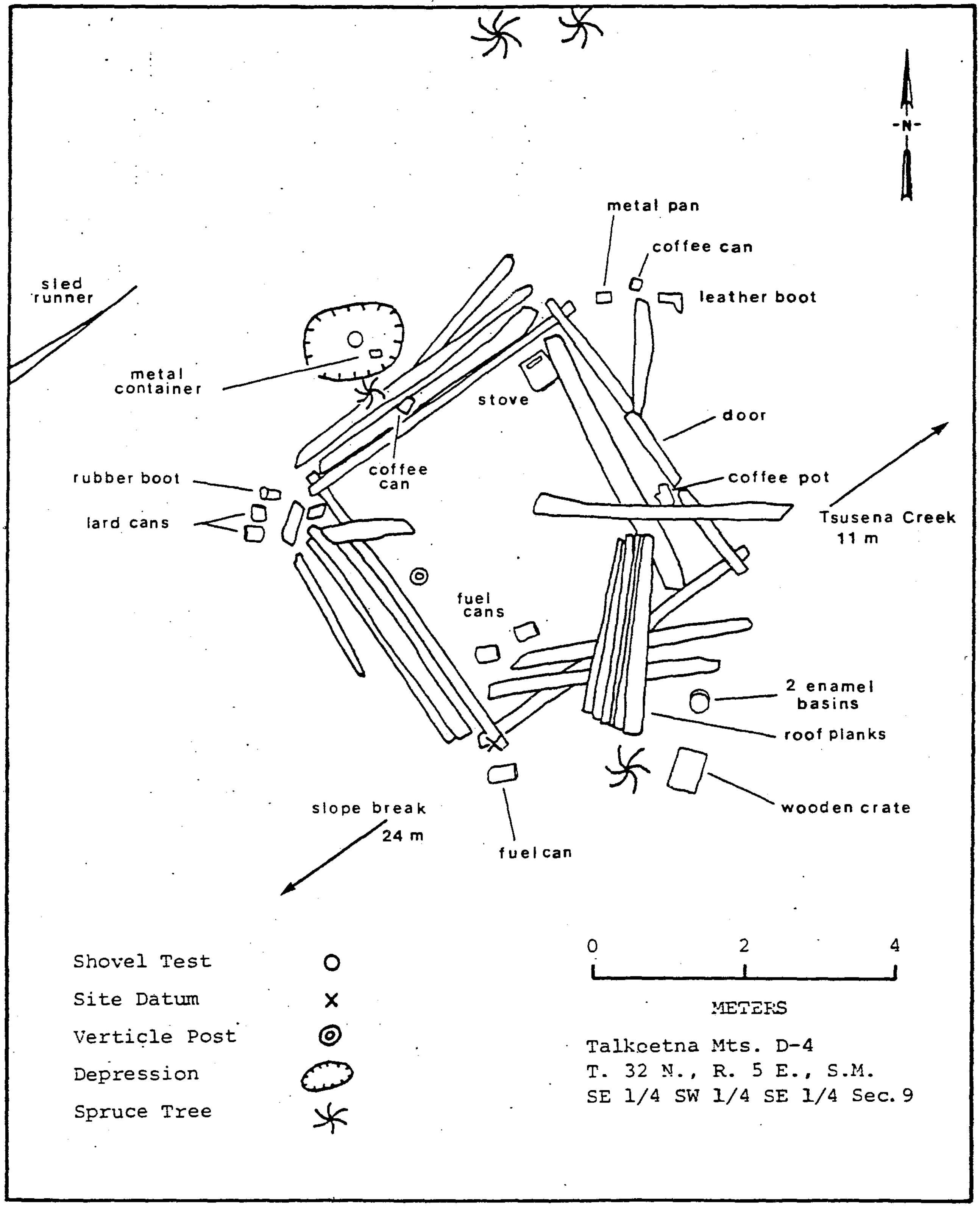


Figure 3.58. Site Map B TLM 212.

AHRS Number TLM 213, Accession Number UA83-225

Area: Ca. 50 m East of Tsusena Creek and 1.9 km Due North of the Confluence of Clark Creek and Tsusena Creek, Proposed Borrow C

Area Map: Figure A.2; Location Map: Figure A.127

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 420800 Northing 6978400

Latitude 62°55'42" N., Longitude 148°33'25" W.

T. 33 N., R. 5 E., Seward Meridian

Sec. 20, NW¼NE¼NW¼

Site Map: Figure 3.59

Setting: TLM 213 is located at ca. 716 m asl (2350 feet), on a level, terrace-like feature which lays between the two major bedrock outcrop spurs on the west side of Tsusena Butte. The site is situated on the southern bank of a small stream that drains the lake and marsh that lie east of the site. The site overlooks the outlet of the stream onto the vegetated floodplain of Tsusena Creek, which lies ca. 8-9 m below. The stream flows out of a steeply incised gully north and northeast of the site and then turns and flows south along the base of the bank west of the site before it joins Tsusena Creek. Across this deeply incised stream outlet are a series of esker like features that meander northward to the base of the northern bedrock spur. To the south, there are also esker like features, but these are not as well-defined. Further south, ca. 400 m, there are bedrock outcrops that form the spur on which TLM 210 and TLM 211 are located. These bedrock spurs and the steeply rising walls of Tsusena Butte, ca. 350 m east, define the limits of the view to the northeast, east, and southeast. This site has a good view of the northern half of the western flanks of Tsusena Butte. To the west lies Tsusena Creek which is visible across its ca. 50 m wide vegetated floodplain, and beyond it are high hills. These hills form the limit of visibility to the northwest, west, and southwest. To the north and south, the Tsusena Creek valley is visible but obscured by the presence of spruce trees. Vegetation on the site consists of lichens, mosses (with hummocky patches up to 50 cm high) starting approximately 3 to 5 m away from the bank edge, blueberries, bearberries, lowbush cranberries, dwarf Labrador tea, crowberries, dwarf birch, and scattered spruce trees. In the vegetated floodplain and marshy areas grasses predominate, while willow is common in the stream valley.

Reconnaissance Testing: TLM 213 consisted of a single large black basalt flake recovered from the initial shovel test. This flake came from the lower portions of the Watana tephra unit. No other artifactual material was recovered in the subsequent test pit 1. The eight shovel tests initiated to determine the parameters of the site were sterile.

Collected Artifact Inventory:

Subsurface:

1 Black basalt flake

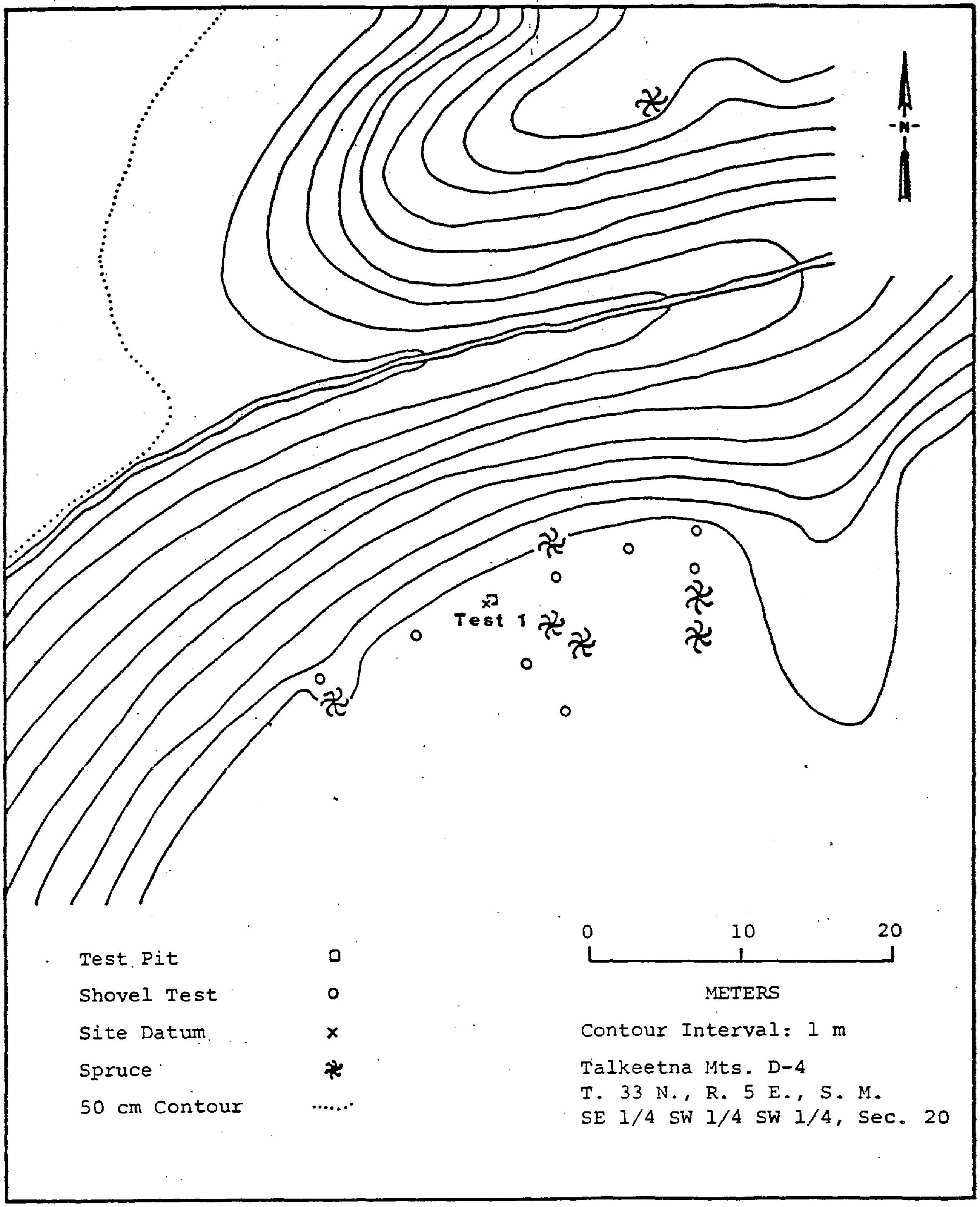


Figure 3.59. Site Map TLM 213.

AHRS Number TLM 214, Accession Number UA83-226

Area: Ca. 9.5 km North-northeast Mouth of Tsusena Creek, Proposed Borrow F

Area Map: Figure A.2; Location Map: Figure A.128

USGS Map: Talkeetna Mts. D-4, Scale 1:63,360

Site Location: UTM Zone 6 Easting 421900 Northing 6975600

Latitude 62°54'12" N., Longitude 148°32'11" W.

T. 33 N., R. 5 E., Seward Meridian

Sec. 32, SE¼NE¼SE¼

Site Map: Figure 3.60

Setting: The site is situated on a relatively flat plateau top at an elevation of ca. 777 m asl (2550 feet), ca. 9.5 km north-northeast of the mouth of Tsusena Creek and 2 km south of Tsusena Butte. The plateau is elbow-shaped, with one axis oriented north-south and the other northwest-southeast. At its greatest extent, the plateau surface measures ca. 150 m by 75 m. Steep descending slopes around the circumference, the greatest measuring ca. 7.5 m on the northwestern margin, define the character of this discrete landform. A series of five small lakes are located on the glaciolacustrine plain to the south of the site. The closest of these lakes is less than 1 km away. Of the three lakes in view from the site, only two support standing water and the other is entirely covered with vegetation. Low undulating knolls and a lowland spruce bog surround the lake series. A rapid, boulder-filled section of Tsusena Creek is situated 700 m west of TLM 214, and is in view to the north and west, with a mountainous vista beyond. Clark Creek, which drains this upland terrain to the northwest, discharges into Tsusena Creek ca. 1.2 km northwest of the site. The mouth of Clark Creek and its lower 6-7 km are obstructed from view by the northwest plateau edge, however, the glacial trough trending northwest-southeast is still visible. Tsusena Butte limits the view to the east and northeast. Two plateaus similar to the landform on which the site is located are in view ca. 1 km southwest. Vegetation on the site includes heath, lichen, mosses, grasses, Labrador tea, dwarf birch, blueberry, crowberry, alder, and an occasional spruce.

Reconnaissance Testing: A deflated exposure revealed a surface lithic scatter of four light gray argillite flakes and one white chert cortex fragment. Two of the argillite flakes articulate, forming a large modified flake. A 40 cm x 40 cm test pit (test pit 1) was situated south of the artifact concentration. Neither the test pit nor subsequent surface reconnaissance of other exposures revealed additional artifacts.

Collected Artifact Inventory:

Surface:

2 Light gray argillite flakes
2 Light gray argillite modified flakes
1 White chert cortex fragment

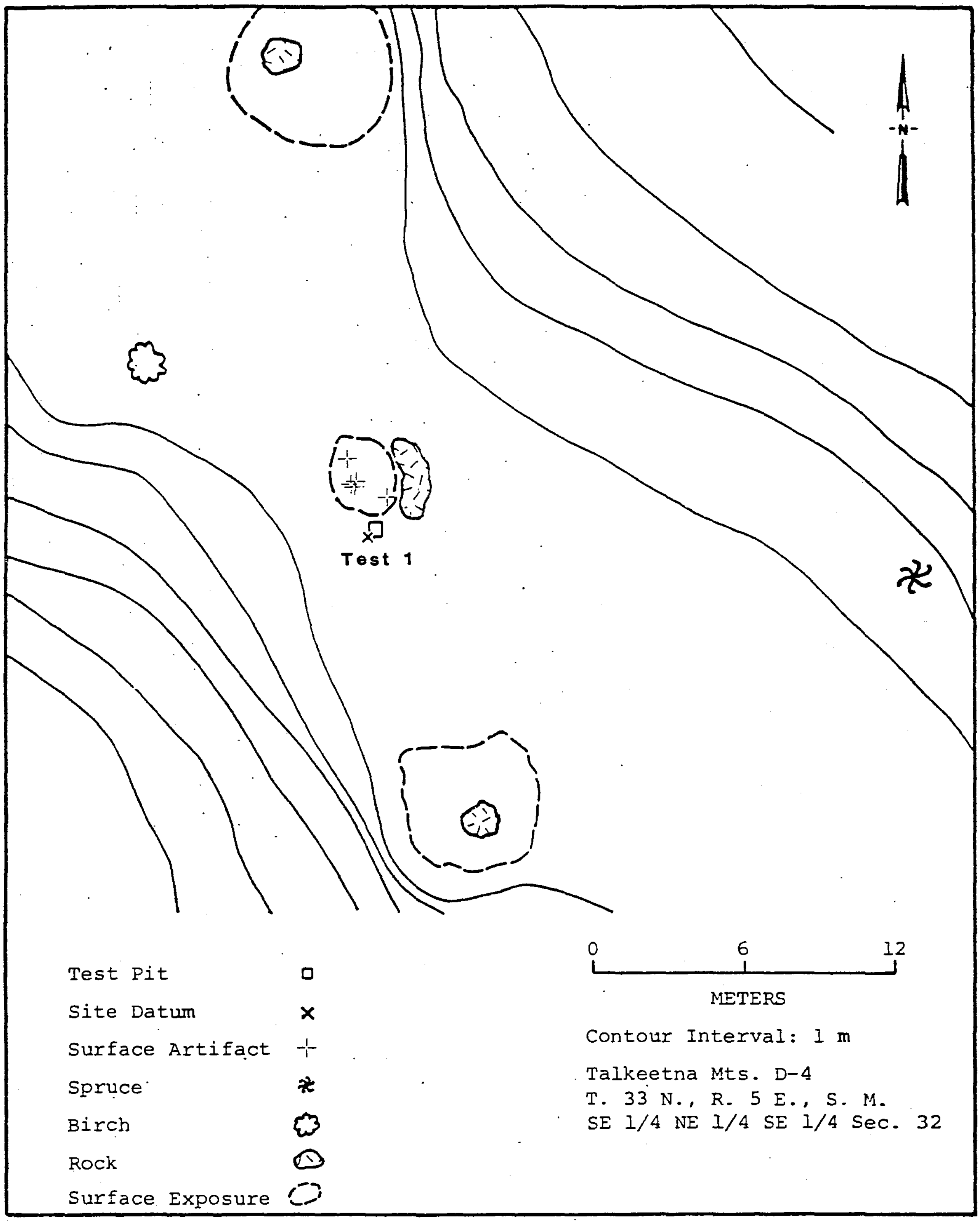


Figure 3.60. Site Map TLM 214.

AHRS Number TLM 215, Accession Number UA83-227

Area: Ca. 2.3 km North-northeast of the Confluence of Watana Creek and the Susitna River, Survey Locale 138
Area Map: Figure A.3; Survey Locale Map: Figure A.91
USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 436500 Northing 6969400

Latitude 62°51'2" N., Longitude 148°14'41" W.

T. 32 N., R. 6 E., Seward Meridian
Sec. 24, SW¼SW¼NE¼

Site Map: Figure 3.61

Setting: TLM 215, lying approximately 2.3 km north-northeast of the confluence of Watana Creek and the Susitna River, is situated on the summit of a knoll rising ca. 5 m above the surrounding black spruce bog. The knoll is slightly rounded with sharp relief on the south and west aspects and more gentle relief on the north and east. Extending approximately 90 m x 45 m and resting at ca. 594 m asl (1950 feet), this knoll is one of the prominent landforms on the lower Watana Creek drainage. It lies at the eastern edge of a gradually sloping plain dissected by marshy drainage channels. On its summit, the knoll is relatively flat and marked by several discrete depressions of not more than 3 m in length which contrast noticeably with the surrounding ground morphology. At its closest point, Watana Creek lies ca. 600 m southeast of the site, and a small pond of less than 1 hectare lies ca. 500 m to the southwest. A commanding view of the Watana Creek drainage to the east, the south Susitna plateau, and the undulating wetlands to the north is afforded from the site. To the west-southwest approximately 300 m distant, a similar knoll on which TLM 184 lies is clearly seen from the site. Vegetation on the knoll includes scattered white spruce, birch, clusters of dwarf birch, lowbush cranberry and blueberry. A lichen mat forms the ground cover in open areas. The low boggy terrain off the knoll consists of muskeg and black spruce.

Reconnaissance Testing: A single calcined unidentifiable bone fragment was recovered from one of the shovel tests placed in a depression, measuring 2.6 m x 2 m, at the northern end of the knoll. Several other depressions were also noted. The additional 25 shovel tests placed on the knoll proved to be sterile. Surface reconnaissance did not produce any additional cultural material.

Collected Artifact Inventory:

Subsurface:

2 Calcined unidentifiable bone fragment

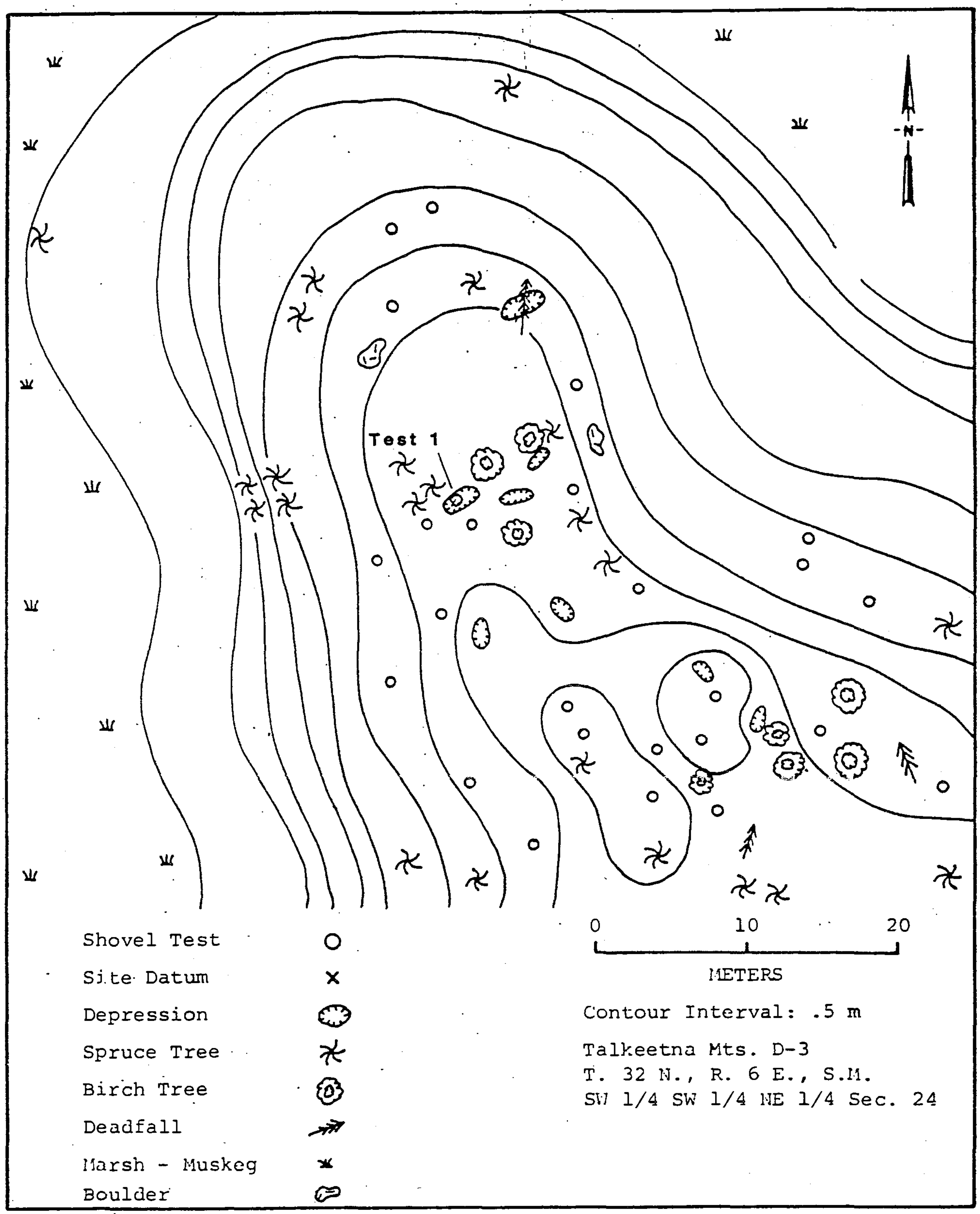


Figure 3.61. Site Map TLM 215.

AHRS Number TLM 218, Accession Number UA83-240

Area: Ca. 7.2 km Northeast of Watana Creek Mouth, Survey Locale 143
Area Map: Figure A.3; Survey Locale Map: Figure A.100
USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 441150 Northing 6971950

Latitude 62°52'28" N., Longitude 148°9'18" W.

T. 32 N., R. 7 E., Seward Meridian
Sec. 9, SE¼SE¼SW¼

Site Map: Figure 3.62

Setting: The site, lying at ca. 670 m asl (2200 feet), is on the northern terminus of a small plateau which marks the upper valley rim of Watana Creek and the edge of a glaciolacustrine plain extending to the west. Cultural material was located on two small discrete knolls ca. 50 m apart along the east-west trending plateau edge. Locus A is restricted to the eastern knoll, and Locus B restricted to the western knoll. To the north, the terrain descends gradually for approximately 50 m before the gradient increases to a ca. 45 degree slope down to an unnamed creek 300 m north. This creek, which drains the high plain to the east, joins Watana Creek ca. 700 m northwest of the site. The closest of three lakes in the site vicinity is situated approximately 1.5 km southeast and is ca. 0.5 hectares in size. Two other lakes are situated 800 m and 500 m south southwest, both approximately 1 hectare in size. The lake situated to the southeast has no apparent inlet stream, and the shoreline is overgrown by grasses and sedges. From either of the loci the west valley rim of Watana Creek is visible to the north, west, and southwest. A prominent downcut valley is in view northwest. To the east, the view from locus B encompasses the broad glaciolacustrine plain. The view of the lake to the southeast is slightly obstructed by the plateau edge, and a higher knoll ca. 150 m south obstructs the view in this direction. Vegetation on the site consists of dwarf birch, black and white spruce, willow, and an occasional small alder, but primarily of lichen, heath, and blueberry.

Reconnaissance Testing: Cultural material from the site is composed of two large chert preforms recovered from a surface exposure at locus A, and an argillite biface fragment and argillite flake found during subsurface testing at locus B. A 40 cm x 40 cm test pit (test pit 1) placed at locus A produced no additional cultural material. The argillite biface fragment was recovered from the Watana tephra unit of test pit 2 (locus B), and the flake from the original shovel test at the location of test pit 2. Thirteen shovel tests scattered across the knoll top at locus B produced no cultural material, nor did the shovel tests placed at 5 m and 10 m intervals to the north, south, east, and west of test pit 1.

Collected Artifact Inventory:

Locus A

Surface:

2 Large, light gray chert preforms

Locus B

Subsurface:

1 Light gray argillite biface fragment
1 Light gray argillite flake

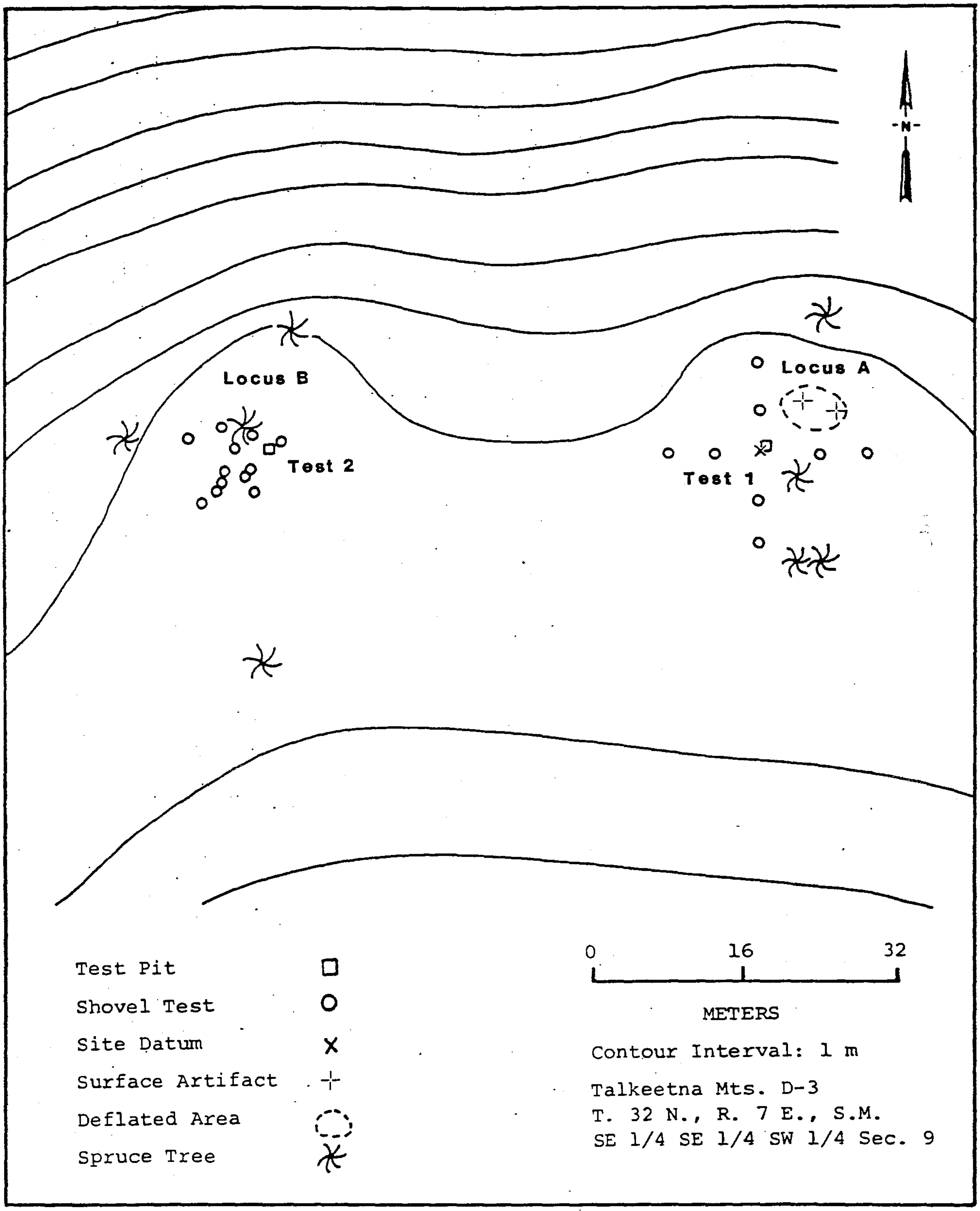


Figure 3.62. Site Map TLM 218.

AHRS Number TLM 219, Accession Number UA83-241

Area: Ca. 8 km Northeast of Watana Creek Mouth, Survey Locale 143
Area Map: Figure A.3; Location Map: Figure A.100
USGS Map: Talkeetna Mts. D-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 44250 Northing 6971450

Latitude 62°52'12" N., Longitude 148°7'39" W.

T. 32 N., R. 7 E., Seward Meridian
Sec. 15, NE¼NW¼NW¼

Site Map: Figure 3.63

Setting: TLM 219 is located at the top of a discrete conical knoll at an elevation of ca. 716 m asl (2350 feet), approximately 8 km northeast of the mouth of Watana Creek. The knoll top is ca. 8 m higher than the surrounding terrain and is the highest in an isolated series of five knolls. A small unnamed creek, easily accessible from the site, is situated ca. 80 m north and northeast of the knoll, and eventually joins a northern branch before emptying into Watana Creek. A lowland wet bog extends approximately 20 m on either side of the rocky creek channel which is partially covered by vegetative overgrowth. This creek drains the upland glaciolacustrine plain east of Watana Creek and west of foothills ca. 6 km in the distance. Directly north, opposite the creek, is a terrace and undulating ridges that gradually ascend to the foothills toward the northeast. Similar topography extends southward. A panoramic vantage point would be available in the absence of two large spruce trees on the southeastern slope. The kame and kettle lake topography is in clear view in all directions except to the southeast. The western valley rim of Watana Creek is in view to the west as is the western part of survey locale 143. On-site vegetation includes lowbush cranberry, crowberries, lichens, bearberries, blueberry, Labrador tea, mosses, dwarf birch, occasional willow and fireweed, dwarf dogwood, small balsam poplar, white spruce and mushrooms. Black spruce becomes the dominant tree at the base of the knoll and into the surrounding wet bog.

Reconnaissance Testing: Three artifacts, a gray chert flake, gray chert side-scraper, and a yellowish brown chert burin (UA83-241-1, Figure 3.67k), were collected from a deflated exposure near the knoll crest. A 40 cm x 40 cm test pit (test pit 1) was placed upslope on a non-deflated area. Excavation of the test pit and subsequent surface reconnaissance produced negative results. Shovel tests placed at 5-m and 10-m intervals north and west of test pit 1 and one shovel test placed 5 m south were sterile.

Collected Artifact Inventory:

Surface:

1 Gray chert flake
1 Gray chert side-scraper
1 Yellowish brown chert burin

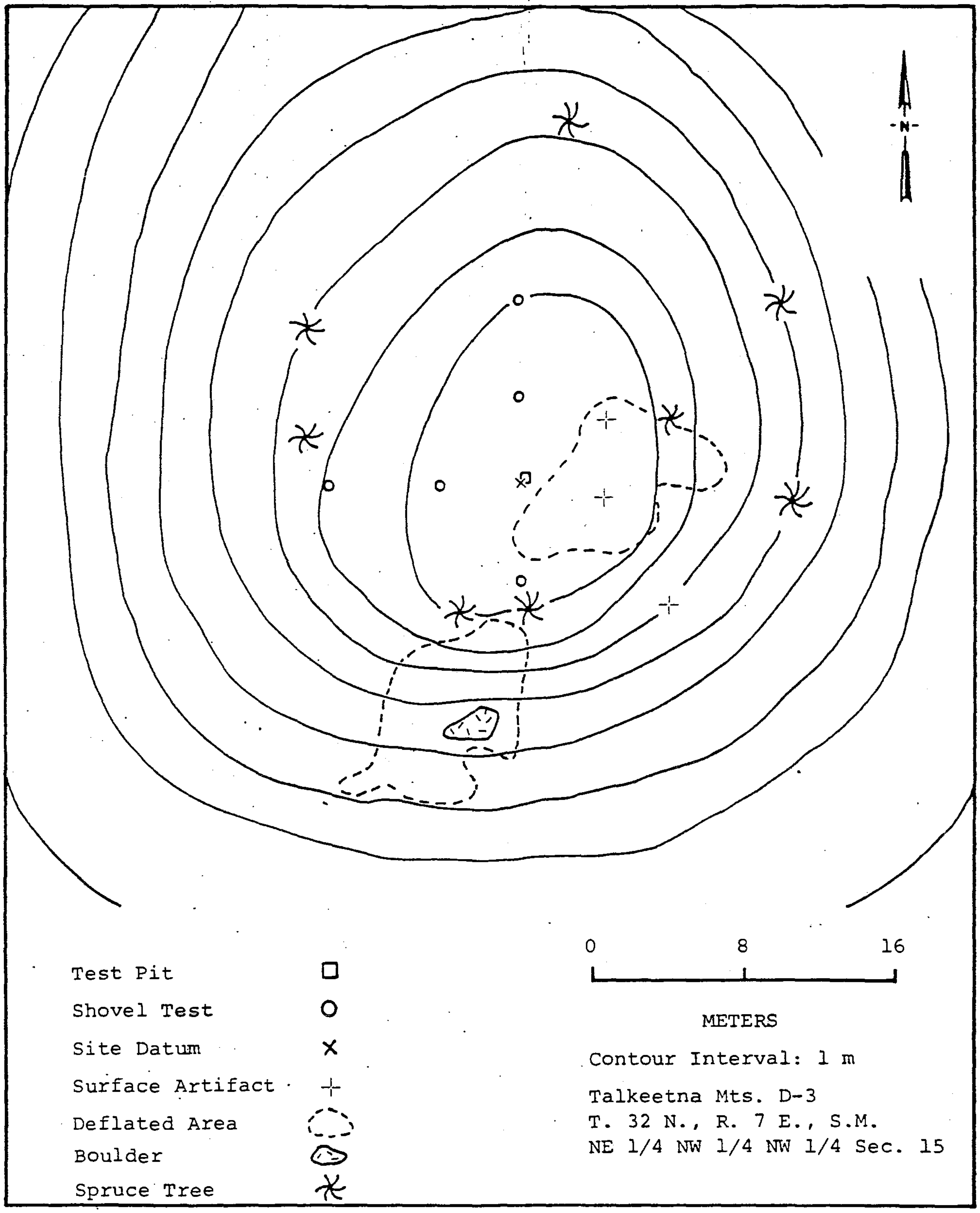


Figure 3.63. Site Map TLM 219.

AHRS Number HEA 211, Accession Number UA83-87

Area: Ca. 5.5 km Northwest of Northern Shore of Deadman Lake
Area Map: Figure A.11; Site Location Map: Figure A.53
USGS Map: Healy A-3, Scale 1:63,360

Site Location: UTM Zone 6 Easting 432550 Northing 6991500

Latitude 63°2'55" N., Longitude 148°20'00" W.

T. 21 S., R. 4 W., Fairbanks Meridian
Sec. 33, NE¼SW¼SW¼

Site Map: Figure 3.64

Setting: The site is situated on the southeast edge of the lower portion of a two-tiered relict river terrace ca. 5.5 km northwest of the northern shore of Deadman Lake, and ca. 500 m northwest of the confluence of two unnamed tributaries of Deadman Creek. Lying at ca. 945 m asl (3100 feet), the terrace parallels the northwest-southeast axis of the glacial valley, and rises approximately 25 m from the valley floor. The lower lobe of the terrace extends 35 m east-west and 25 m north-south, and provides a commanding view of the valley floor and barren, steep slopes mantled in glacial outwash to the east and west. Approximately 1.5 km to the northeast is a chain of 8 small lakes, each of them less than 1 hectare, and not visible from the site. The site itself is located on the deflated summit of the terrace lobe. The highbrush/alpine vegetation includes dwarf birch, lowbush cranberry, bearberry, Labrador tea, and lichen. Alder and willow are present in the drainage to the south of the site.

Reconnaissance Testing: The site consists of a small surface lithic scatter concentrated in a deflated area of 7 m x 6 m on the terrace summit. A total of 6 light gray chert flakes (4 clustered in a 10 cm x 10 cm area) were observed and collected, plus one unidentified bone fragment of doubtful association with the lithic scatter. A 40 cm x

40 cm test pit (test pit 1) was placed in an area of soil deposition 1 m northwest of the flake cluster. In addition to the test pit, 8 shovel tests were dug 5 m and 10 m to the north, south, east, and west of site datum. No cultural material was found in any of the subsurface tests.

Collected Artifact Inventory:

Surface:

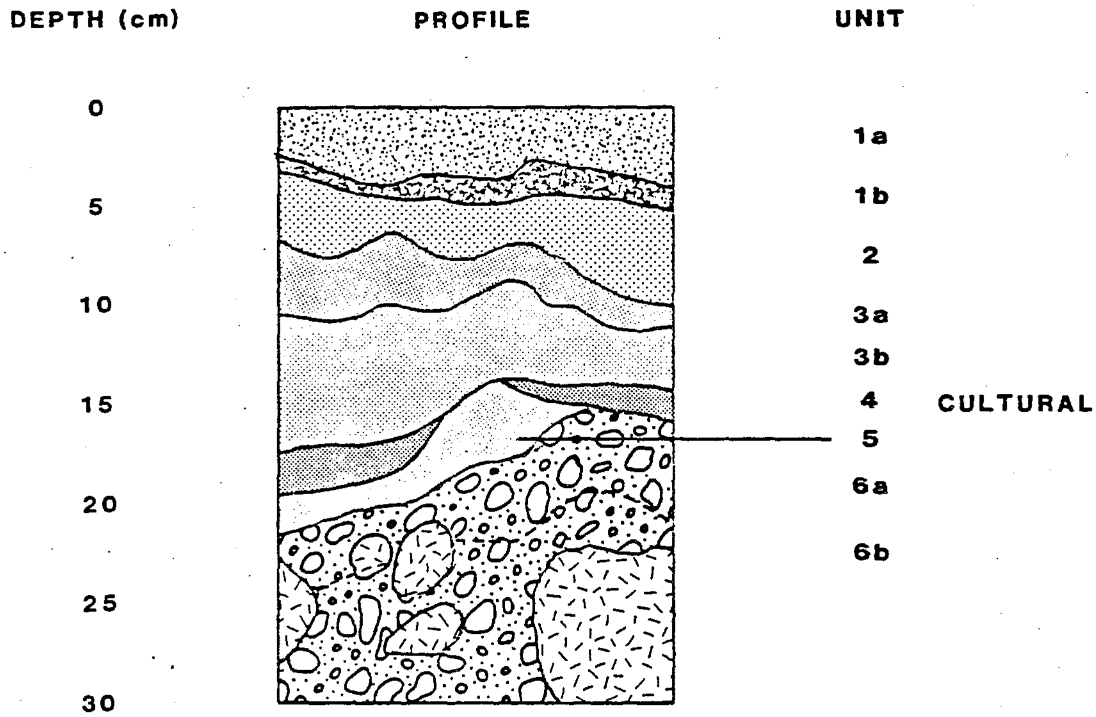
6 Light gray chert flakes
1 Unidentifiable bone fragment

the surface exposure. The results of subsurface testing indicated that a single component was present at the site. This component was characterized by lithic and bone material within a dark brown to black matrix with charcoal and in a gray/black loess unit overlying the charcoal layer. A total of five tests were excavated, three of which contained artifactual material. The inventory of material from surface and subsurface testing included 18 flakes, 1 flaked pebble, and 40 bone fragments. Three charcoal samples were collected from the level associated with artifacts. One sample was submitted for radiocarbon age determination and yielded a data of 3675 ± 160 years: 1725 B.C. (GX-5630) (Bacon 1978).

The site was revisited in 1980 by University of Alaska Museum personnel while conducting reconnaissance level survey. Site locational data and environmental information were checked, but no further testing was initiated. Two of the five tests excavated in 1978 were relocated and designated tests A and B.

The results of excavation during the 1983 season confirmed the presence of a single component at the site. All four of the test squares contained artifactual material at the stratigraphic level associated with charcoal and charcoal-stained matrix (unit 4, Figure 3.71). The 1983 inventory included 4 tools or tool fragments, 130 pieces of lithic debitage, and 341 bone fragments. The collection of artifacts is summarized in Table 3.4, and their distribution by test square and stratigraphic unit appears in Table 3.7.

It was not until the upper units had been excavated in three of the test squares that the outlines of the three remaining tests excavated in 1978 could be defined. The position of the 1 m by 1 m test squares was such that all three of the contiguous squares incorporated tests from subsurface testing conducted in 1978. These tests were designated tests C, D, and E (Figure 3.70). The subsurface outlines of these tests were easily defined due to the mixed appearance of backfill matrix within the tests. The backfill matrix was excavated and screened separately from the undisturbed area. The provenience of the



<u>Unit 4</u>

UA83-132-128a: 4950 ± 120 years: 3000 B.C. (Beta 7298)

UA83-132-128b: 3220 ± 90 years: 1270 B.C. (Beta 7299)

Figure 3.71. Composite Profile TLM 016.

TABLE 3.3

SOIL/SEDIMENT DESCRIPTION FOR COMPOSITE PROFILE, TLM 016.

Unit	Description
1a	Surface organic layer: roots and plant material from Labrador tea, lowbush cranberry, crowberry, dwarf birch, and lichen at the surface. Varies in thickness from 1-10 cm but is generally 1-3 cm thick. Lower boundary is clear and wavy. Non-mineral 01 horizon. Continuous except at the location, and in the vicinity, of 1978 tests.
1b	Fine silty sand with partially decomposed plant fragments and finely divided organic material; black (2.5 YR 0/0). Usually very thin, less than 2 cm. Lower boundary is abrupt to clear and wavy. Unit is not always easily distinguishable from the overlying organic mat. 02, or humus, horizon. Very rare bone fragments, possibly derived from back dirt of previously excavated test pits.
2	Fine grained silt-sized particles; pinkish gray (5 YR 6/2). Ranges from 1-9 cm, generally 2-4 cm. Abrupt, wavy and irregular lower contact with unit 3. Tephra (Devil); eluvial A horizon. Discontinuous, although present in each of the test squares. Dries quickly to a fine powder. Leaching of organic material at the upper extent of the unit is evident. Root penetration. Basalt flake and rare bone fragments possibly derived from testing disturbance.

TABLE 3.3 (Continued)

Unit	Description
3a	Fine to medium grained particles, granular structure, friable; dark reddish brown (5 YR 3/4). Ranges from 1-6 cm, usually 1-3 cm. Clear to diffuse and wavy to irregular lower boundary. Tephra (Watana); illuvial B2 horizon. Continuous across the grid squares. Oxidized, particularly at the contact with unit 2. Roots common.
3b	Very fine silt-sized particles; yellowish brown (10 YR 5/6) to a very pale brown (10 YR 7/4) (Dry). Varies from 1-9 cm in thickness, usually 2-6 cm. Abrupt and smooth boundary with underlying unit. Tephra (Watana). Continuous unit in the three contiguous test squares and present in N98/E105. Dries to a fine powder. Gravels and root penetration. Basalt flake possibly derived from unit 4.
4	Very fine silt-sized particles with charcoal staining, flecks and pieces; black (10 YR 2/1). Varies in thickness from 1-9 cm, usually 2-4 cm. Boundary varies from clear to diffuse and from smooth to wavy. Tephra (Oshetna) mixed with charcoal. Located in the NE corner of N98/E105, and is generally continuous in the three contiguous test squares with the exception of N101/E100 where the unit lacks continuity. Charcoal may be cultural and/or associated with a paleosol that formed after the deposition of unit 5 (Oshetna tephra). Basalt flakes and small bone fragments are common. Two radiocarbon dates: 3220 ± 90 B.P. and 4950 ± 120 B.P.

TABLE 3.3 (Continued)

Unit	Description
5	Fine silt to sand-sized particles with occasional gravels and pebbles; grayish brown (10 YR 5/2). Varies from 1-10 cm in thickness. Lower boundary is clear to diffuse, and wavy to broken. Tephra (Oshetna); buried eluvial A horizon. Present in each of the test squares but lacks continuity. Unit is poorly sorted and appears to be mixed with unit 6. Two basalt flakes, probably derived from unit 4.
6a	Sand and silt with gravels, pebbles, and cobbles; usually strong brown (7.5 YR 4/6) although variable in color depending on degree of weathering. Gradational lower boundary. Glacial drift. Poorly sorted. Rare flakes and bone fragments possibly due to post depositional disturbance or mixing with unit 4 during excavation.
6b	Some fine silt, sand, gravels, pebbles and cobbles; light olive brown (2.5 Y 5/4). Glacial drift. Poorly or very poorly sorted. Majority of cobbles were rounded, with glacial striations observed. Cobbles were usually 8-15 cm in diameter reaching a maximum of 30 cm. Excavation into this unit determined limit of excavation. Basalt flake probably intrusive from unit 4.

artifactual material recovered during testing in 1978 to the individual tests is unknown.

Stratigraphy at the site consisted of ca. 12-22 cm of soil/sediments underlain by glacial material (Table 3.3). Six different units were defined. Three units represent at least three sedimentary sequences of volcanic tephra deposition. The tephras have been defined at other sites in the project area on the basis of petrographic laboratory work (Dixon et al. 1982b: 4-1 - 4-25). The identification of these tephras in the field was based primarily on color distinctions between the stratigraphic units. The tephra designations are as follows: Devil (unit 2), Watana (unit 3), and Oshetna (unit 5). Some of the observed variation in color between units, and within units, may also be the result of soil forming processes. Unit 2 may represent an eluvial horizon, and unit 3a, which is the Upper Watana tephra is stained a dark reddish-brown color.

Disturbance of the stratigraphic units as a result of natural processes such as cryoturbation, rodent burrowing, and root invasion was apparent. Rodent disturbance was particularly common in the area of the 1978 tests suggesting that this disturbance took place after the excavation of these tests.

The surface of the site is covered with a well-established organic layer, unit 1a, with a well-formed and networked root mat underlain by finely sorted organic material, unit 1b. In the area of the 1978 tests some surface disturbance was evident, as well as in an erosional area.

Between the Watana and Oshetna tephras a layer of charcoal-stained matrix with charcoal pieces was identified (unit 4). The charcoal does not form a discrete layer, but rather appears to be partially mixed with the Oshetna tephra (unit 5). The charcoal layer may represent a paleosol that formed after the deposition of the Oshetna tephra. Due to the acidic nature of boreal soils, leaching of the finely sorted organic fraction of the paleosol may have occurred leaving the charcoal, which is chemically inert, as all that remains of the surface. Lack of continuity of the unit 4 surface may be the result of erosion after occupation.

The cultural component at TLM 016 can be correlated to the charcoal-stained matrix (unit 4) with artifactual material being frequently found at the upper contact of and within the unit. Lithic artifacts consisting primarily of basalt flakes were recovered from all four of the test squares in association with this stratigraphic level. Small bone fragments were also collected, but these occurred in only two of the test squares, N100/E99 and N101/E100.

A total of 109 lithics were collected from unit 4. The size range of the lithic material varies from cobble fragments of 4-7 cm to small, less than 1 cm flakes. With the exception of 1 quartz flake and 2 argillite flakes, the lithic material in unit 4 is basalt. Variation was evident in the spatial distribution of lithic debitage in terms of both quantity and size range. While N98/E105 had the highest flake count, 43 flakes, the lithic debitage, with the exception of one flake, is 2.5 cm or less along the longest axis. In contrast, only 12 lithics were recovered from N99/E100, consisting primarily of basalt cobble fragments and flakes in the 2.5 to 5 cm size range. The cobble fragments suggest that the cobble(s) was subangular to rounded with a weathered cortex. One of the flakes was unifacially retouched (UA83-132-50). Basalt flakes collected from N100/E99 and N101/E100 include a size range from 0.5 to 5 cm.

Four tools were recovered during systematic testing (Table 3.6). Two of these tools were found while re-excavating Test B. Even though these two artifacts were not found in situ, it is probable that they are from the single component identified at the site. The tools from the disturbed context consist of a black chert endscraper (UA83-132-6) and a modified piece of argillite (UA83-132-127) (Figure 3.96a, c). Two tools were found in unit 4 during the excavation of the test squares, including a unifacially worked basalt flake (UA83-132-50) and a basalt flake with a bifacial edge (UA83-132-73) (Figure 3.96d, b).

Additional lithic artifacts collected during systematic testing include 7 flakes from various stratigraphic levels, 2 flakes located on the surface, 5 flakes collected during re-excavation of the 1978 tests, and 19 flakes in disturbed contexts. The raw material type is characteristically basalt with the exception of an argillite flake and a chert flake. Artifactual material located on the surface and in stratigraphic levels other than unit 4 appears to have been displaced from unit 4 due to natural processes, testing conducted in 1978, or excavation during 1983. The distribution of material in other levels does not provide sufficient evidence for defining an additional component at the site.

Faunal material collected during systematic testing included 341 specimens, 4 of which were identifiable (Table 3.5). Identified bone material included an ulna, sternum fragment and tarsometatarsus of ptarmigan (Lagopus sp.), and an ulna(?) fragment which is probably caribou (Rangifer tarandus). The remaining material consisted of burned bone fragments of medium-large mammal. All of the faunal material was burned with the exception of the ptarmigan bone.

Faunal material was collected from two of the test squares, N100/E99 and N101/E100. Almost half of the material, 146 specimens, was located in disturbed contexts, i.e., in rodent burrows and the backfill of Test E. The remaining material, with the exception of 9 fragments, was located within unit 4 and unit 6a. Bone located in unit 6a may be due to post-depositional disturbance. The stratigraphic position of the three ptarmigan bones (unit 1a, unit 2 and backfill of Test E) suggests that this material is unrelated to the component associated with unit 4.

Five charcoal samples were collected from the site. All were collected from unit 4. Two of the samples were submitted for radiocarbon dating. These two samples were collected from a concentration of charcoal in N99/E100 and produced dates of 4950 ± 120 years: 3000 B.C. (Beta 7298), and 3220 ± 90 years: 1270 B.C. (Beta 7299). In addition to these dates is the date of 3675 ± 160 years: 1725 B.C. (GX-5630; Bacon 1978) which came from the sample submitted in 1978. The dates provide a range of 1730 years for the charcoal level. The range could possibly support the idea that the charcoal is not necessarily cultural in origin, but associated with a surface that was exposed during the interim between the Oshetna and Watana tephra depositions. While cultural charcoal may be included with the charcoal within unit 4, it may be impossible to distinguish from charcoal resulting from noncultural events. Although the charcoal samples do not provide radiocarbon determinations for the cultural component, they more probably date the geologic surface associated with the occupation.

Evaluation:

TLM 016 is located on a kame in an area of ice stagnation topography. While the kame is not readily distinguished from others in the vicinity, it is the highest point of topographic relief in the immediate area and provides a panoramic view, including portions of four lakes to the north and west. The location of the site, in conjunction with the artifact assemblage, suggests that the site functioned as a hunting overlook and/or a campsite.

A single component is suggested at the site based on the homogeneity of lithic material and because the cultural material is situated stratigraphically in a charcoal layer between the Watana and Oshetna tephras. During excavation, most of the cultural material was found at the upper contact of and within the charcoal level. The level may represent a paleosol that developed during the interim between the tephra depositions. Absence of finely sorted organic material may be the result of leaching leaving only the chemically inert charcoal.

Evidence that this surface was exposed for a long period of time is reflected in the range of radiocarbon dates. Three dates from 1978 and 1983 field seasons ranged from 3000 B.C. to 1725 B.C., with an inclusive range of 1730 years. The range supports the idea that the charcoal may not necessarily be cultural in origin but may have accumulated as the result of natural processes during the interval between the Watana and Oshetna ashfalls.

Artifacts consisting primarily of basalt debitage and faunal material were recovered. Argillite, chert, and quartz are present, but occur infrequently, representing only 5% of the total lithic assemblage. The distribution and types of lithic debitage at the site suggest that various stages of lithic reduction occurred in different areas of the site. The spatial differences in lithic distribution are equally as likely to be the result of different occupations at the site.

The spatial extent of the site is limited to the topographic feature. Results of systematic testing and additional subsurface testing indicate that the site is confined to the upper extent of the kame for an area of at least 8 m east-west by 4 m north-south and no larger than 15 m east-west by 8 m north-south. Because excavation during 1983 was largely in an area where testing had already been conducted, a large portion of the site area remains undisturbed.

While only a single prehistoric component is represented at the site, further excavation should address more accurately the question of spatial variation. One of the tools collected, a black chert endscraper (UA83-132-6), in conjunction with the dating of the stratigraphic position of the artifactual material, suggests that the component be ascribed to the Northern Archaic tradition of ca. 3000 B.C. to 1500 B.C. Collection of additional diagnostic artifacts is necessary to substantiate this affiliation.

TABLE 3.4

ARTIFACT SUMMARY, TLM 016.

Lithic Material	
1	Modified argillite piece (UA83-132-127)
1	Basalt flake with bifacial edge (UA83-132-73)
1	Unifacially retouched basalt flake (UA83-132-50)
1	Black chert endscraper (UA83-132-6)
3	Argillite flakes
114	Basalt flakes
7	Basalt flakes with cortex
4	Basalt cobble fragments
1	Chert flake
1	Quartz flake
134 Total	
Faunal Material	
341	Bone fragments

TABLE 3.5

FAUNAL MATERIAL, TLM 016.

Unit	Test Square	Description
4	N100/E99	98 Fragments, calcined, medium-large mammal
1a	N101/E100	1 Ulna, unburned, ptarmigan (Lagopus sp.)
		1 Long bone fragment, calcined, medium-large mammal
2		1 Sternum fragment, unburned, ptarmigan (Lagopus sp.)
		6 Fragments, calcined, medium-large mammal
6a		22 Fragments, calcined, medium-large mammal
Backfill Test E		1 Ulna (?) fragment, proximal shaft, calcined, probably caribou (Rangifer tarandus)
		1 Tarsometatarsus, unburned, ptarmigan (Lagopus sp.)
		98 Fragments, calcined, medium-large mammal
Rodent Burrow Fill		46 Fragments, calcined, medium-large mammal

TABLE 3.6

TOOLS AND TOOL FRAGMENTS BY STRATIGRAPHIC UNIT, TLM 016.

Unit	Test Square	Description
4 Charcoal layer at upper extent of the Oshetna tephra	N99/E100	UA83-132-50. Basalt flake with unifacial retouch along the length of the distal edge on the ventral surface of the flake. Flake is triangular in shape.
	N100/E99	UA83-132-73. Basalt flake with hinge fracture. Flake has a bifacial edge.
Disturbed context (found during re-excavation of 1978 test pits)	Test Pit B	UA83-132-6. Black chert endscraper. Steep unifacial retouch on the dorsal face of the flake. Retouch does not extend onto the lateral margins. Worked end is convex with bevel formed by unifacial working.
		UA83-132-127. Tabular piece of argillite approximately rhomboidal in cross-section. Original bedding planes or fracture lines. Continuous unifacial retouch along one of the edges.

TABLE 3.7

ARTIFACT SUMMARY BY TEST SQUARE AND STRATIGRAPHIC UNIT, TLM 016.

Unit	Test Squares			
	N99/E100	N100/E99	N101/E100	N98/E105
Surface		2 Basalt flakes		
1a (surface organic layer)			2 Bone fragments	
2 (Devil tephra; A horizon)			1 Basalt flake 7 Bone fragments	
3b (Watana tephra)				1 Basalt flake

TABLE 3.7 (Continued)

Unit	Test Squares N99/E100	N100/E99	N101/E100	N98/E105
4 (Charcoal layer; Oshetna tephra)	4 Basalt cobble fragments with cortex 1 Basalt flake with cortex 4 Basalt flakes 1 Basalt flake with unifacial retouch (UA83-132-50)	4 Basalt flakes with cortex 14 Basalt flakes 2 Argillite flakes 1 Quartz flake 1 Basalt flake with bifacial edge (UA83-132-73) 98 Bone fragments	24 Basalt flakes 66 Bone fragments	41 Basalt flakes 2 Basalt flakes with cortex

TABLE 3.7 (Continued)

Unit	Test Squares			
	N99/E100	N100/E99	N101/E100	N98/E105
5 (Oshetna tephra)				2 Basalt flakes
6a (Glacial drift)	1 Basalt flake		1 Basalt flake 22 Bone fragments	
6b (Glacial drift)	1 Basalt flake			
Rodent burrow			14 Basalt flakes 46 Bone fragments	
Unknown (Wall scrapings)			5 Basalt flakes	

TABLE 3.7 (Continued)

Material Collected from Re-excavation of 1978 Tests

Test B	Black chert endscraper (UA83-132-6), modified argillite piece (UA83-132-127), 3 basalt flakes
Test D	1 Basalt flake
Test E	100 Bone fragments, 1 argillite flake

Systematic Testing TLM 030--Fog Creek Site

Location: See Section 3 (Dixon et al. 1982a:3-110)

Testing:

Testing at TLM 030, the Fog Creek Site, during the 1983 field season included systematic testing, testing during reconnaissance level survey, and grid shovel testing. Figure 3.72 illustrates the topography of the site area and the portions of the terrace that were examined during systematic and reconnaissance testing.

Twelve 1 m by 1 m test squares were excavated during systematic testing. The test squares were placed adjacent to one another and located on the northern edge of the terrace. At this location the terrace edge is oriented east to west paralleling Fog Creek. A series of 10 test squares were placed between two of the 1980 test pits (test pits 1 and 4). Square placement was designed such that one test square was superimposed over Test Pit 1 and another test square intersected Test Pit 4. An additional eight squares were placed between these squares in a configuration that would provide a continuous series of profiles between the two test pits. The objective of this square placement strategy was to clarity the relationship between two radiocarbon dates obtained from the two test pits in 1980 and to ascertain the number, content, and stratigraphic position of the prehistoric component(s) reported at that time. Once excavation of the ten initial test squares was completed, two additional squares (N105/E107 and N105/E109) were excavated. Excavation of these two squares was undertaken to resolve questions regarding the relationship of artifactual material to the stratigraphic sequence in this area of the site. Refer to Figure 3.73 for the location of the test squares and their relationship to the 1980 test pits.

Reconnaissance testing consisted of a number of random shovel tests placed in the southern portion of the terrace from ca. 75 to 180 meters south of the main excavation area. The three shovel tests that

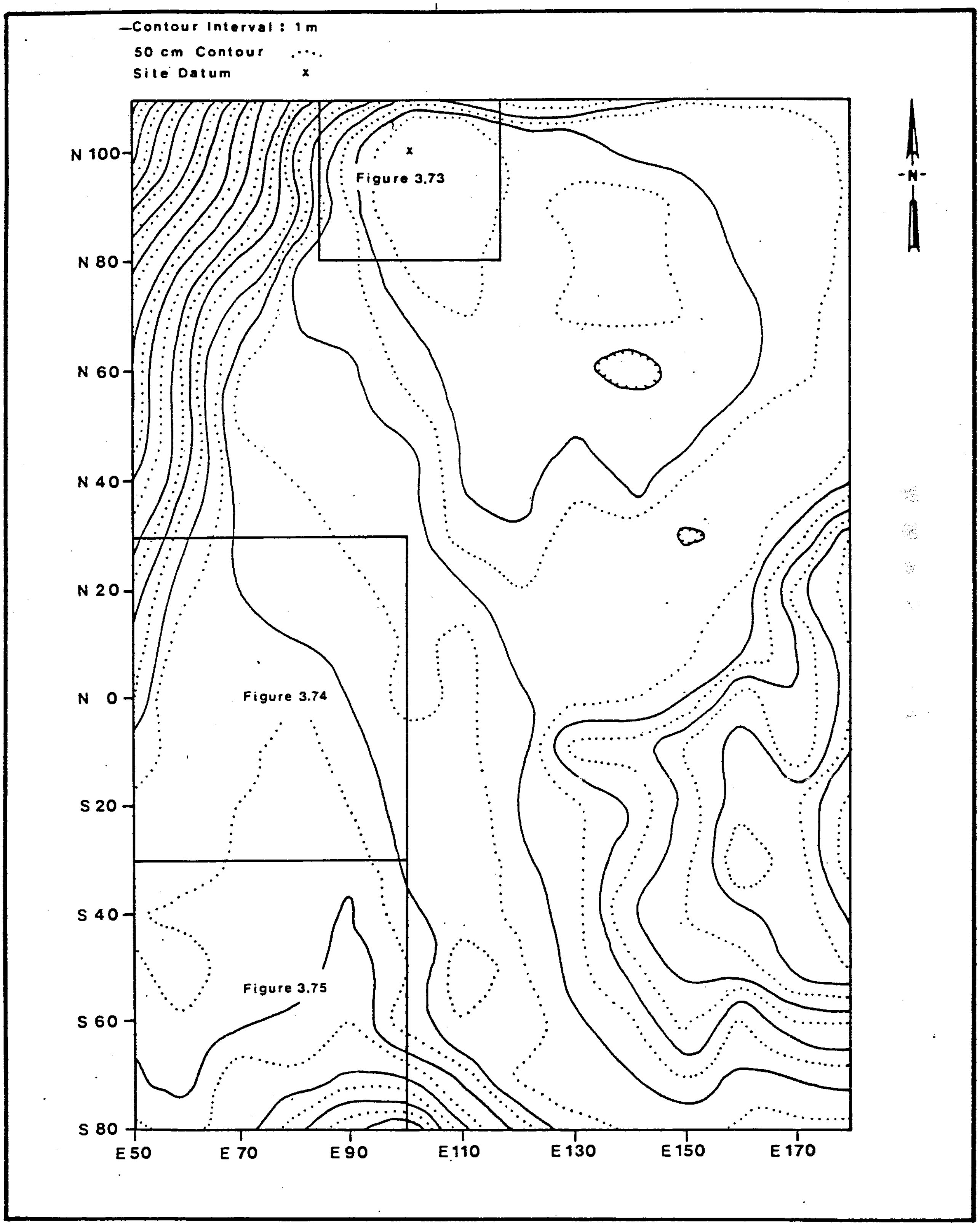


Figure 3.72. Site Map TLM 030.

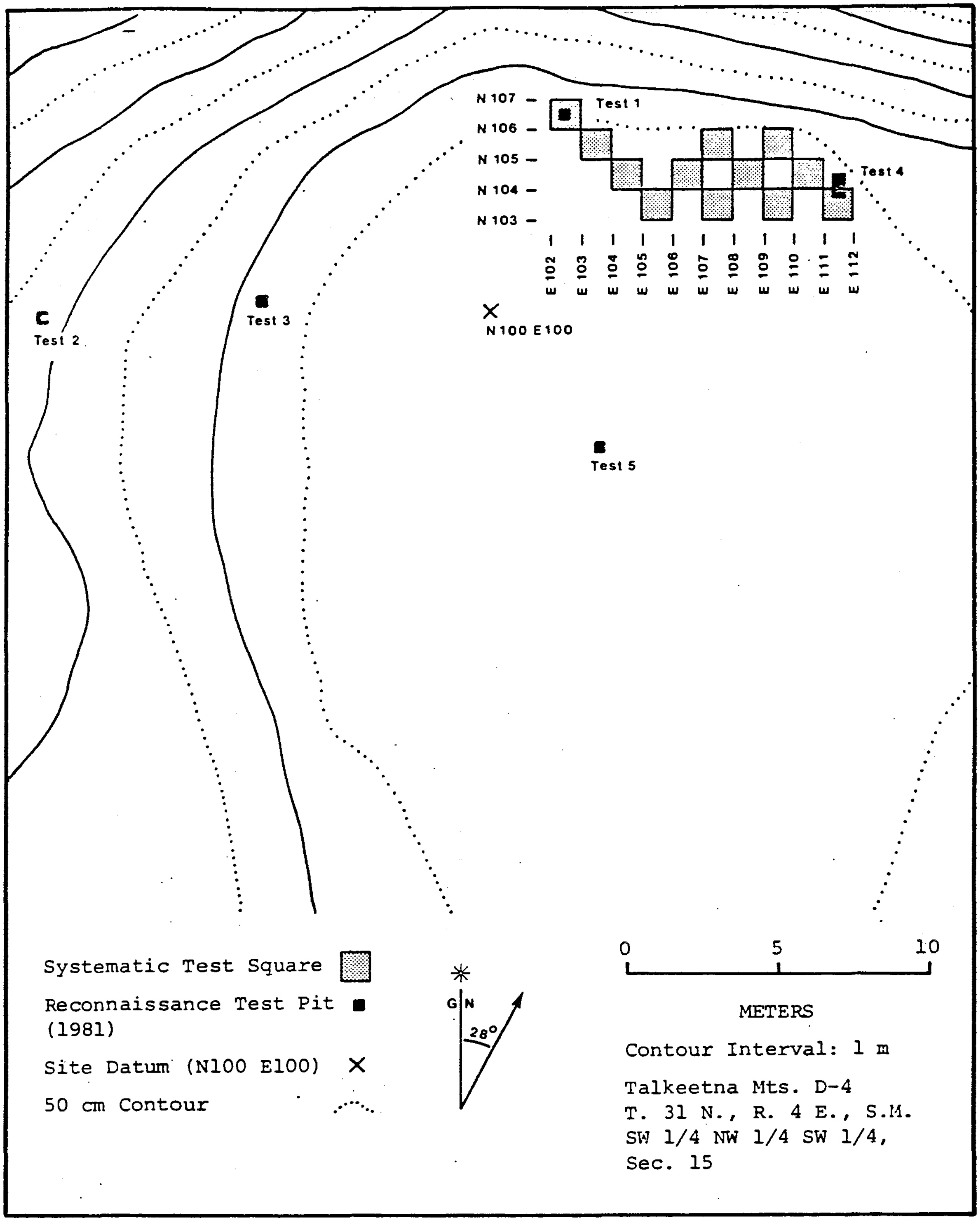


Figure 3.73. Square Placement TLM 030.

initially produced subsurface artifactual material were expanded into 40 cm by 40 cm test pits. Additional shovel tests were placed along the western terrace edge, four of which produced artifactual material (Figures 3.74 and 3.75).

A grid shovel testing program was implemented to determine the areal extent of the Fog Creek site, and to clarify the relationship between the artifactual material in the main excavation area and subsurface material located during reconnaissance testing (1983). A 10 m by 10 m grid was established over the terrace using the systematic testing site grid, and shovel testing was conducted at 10 meter intervals. Two hundred twenty-four shovel tests were excavated, ten of which contained artifactual material (Figure 3.76).

Discussion:

The Fog Creek Site is located on a kame terrace on the east side of the Susitna River. The terrace parallels the river and is bisected by a number of drainages. The terrace is deeply incised north of the site by Fog Creek, a major tributary of the Susitna River, and is bisected to the south by a small, clear, moderately incised stream.

The site was initially located in 1980. At that time testing was confined to the northern edge of the terrace overlooking the broad flat delta of Fog Creek and its confluence with the Susitna River. A high density of artifactual material was found in four of five test pits located along the terrace edge (Dixon et al. 1982a; Betts, Phippen and Dixon 1982). Surface artifactual material, including a side-notched projectile point (UA80-77-520), was located on a game trail. The game trail crosses the site and traverses the moderately steep slope of the western terrace edge to an alluvial plain of Fog Creek. The surface material is confined to the sloping portion of the trail suggesting that these artifacts are undergoing downslope movement. Except for the projectile point the surface material was not collected.

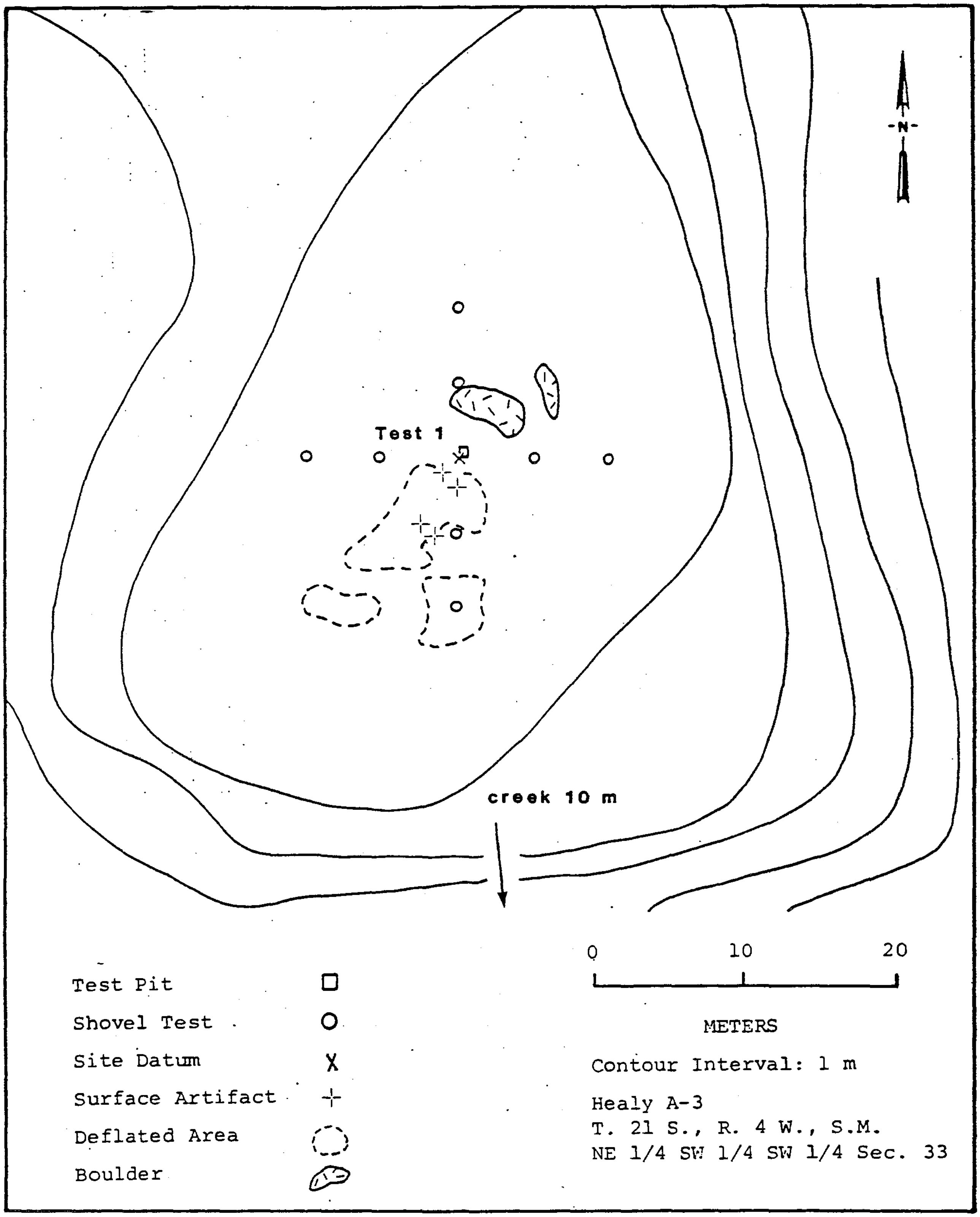


Figure 3.64. Site Map HEA 211.

KEY TO FIGURES 3.65 - 3.68

Figure	Site		Accession Number, Description
3.65 a	TLM 159		UA83-88-27, microblade
b	TLM 168		UA83-94-1, burinated flake
c	TLM 169		UA83-95-1, biface
d	TLM 172		UA83-98-1, retouched blade
e	TLM 175		UA83-101-1, projectile point
f	TLM 180		UA83-106-15, microblade, proximal portion
g	TLM 180		UA83-106-16, microblade, medial portion
h	TLM 180		UA83-106-17, microblade, proximal portion
i	TLM 180		UA83-106-90, microblade, medial portion
3.66 a	TLM 185, Locus B		UA83-111-1, side notched point or knife
b	TLM 186		UA83-112-1, biface
c	TLM 205		UA83-217-1, scraper
d	TLM 207	1	UA83-219-7, microblade, proximal portion
		2	UA83-219-10, microblade, proximal portion
		3	UA83-219-11, microblade, proximal portion
		4	UA83-219-12, microblade, proximal portion
		5	UA83-219-13, microblade, medial portion
		6	UA83-219-15, microblade, proximal portion
		7	UA83-219-17, microblade, proximal portion
		8	UA83-219-19, microblade, proximal portion
		9	UA83-219-23, microblade, medial portion
		10	UA83-219-24, microblade, medial portion
		11	UA83-219-25, microblade, medial portion
		12	UA83-219-26, microblade, medial portion
		13	UA83-219-28, microblade, medial portion
		14	UA83-219-29, microblade, medial portion
		15	UA83-219-30, microblade, medial portion
		16	UA83-219-31, microblade, medial portion
		17	UA83-219-32, microblade, medial portion

KEY TO FIGURES 3.65 - 3.68 (Continued)

Figure	Site	Accession Number, Description	
		18	UA83-219-37, microblade, medial portion
		19	UA83-219-40, microblade, proximal portion
		20	UA83-219-42, microblade, medial portion
		21	UA83-219-44, microblade, medial portion
		22	UA83-219-45, microblade, medial portion
		23	UA83-219-46, microblade, medial portion
		24	UA83-219-47, microblade, medial portion
		25	UA83-219-49, microblade, medial portion
		26	UA83-219-50, microblade, proximal portion
3.67 a	TLM 208, Locus A		UA83-220-1, end scraper
b	TLM 208, Locus A		UA83-220-2, biface
c	TLM 108, Locus A		UA83-220-3, end scraper
d	TLM 208, Locus A		UA83-220-4, end scraper
e	TLM 208, Locus A		UA83-220-5, biface
f	TLM 208, Locus A		UA83-220-6, possible knife
g	TLM 208, Locus A		UA83-220-7, end scraper
h	TLM 208, Locus A		UA83-220-13, end scraper
i	TLM 208, Locus A		UA83-220-27, notched knife
j	TLM 143		UA83-216-28, biface
k	TLM 219		UA83-241-1, burin
3.68	TLM 196		UA83-122-1, UA83-122-9, UA83-122-10, Moose mandible fragments

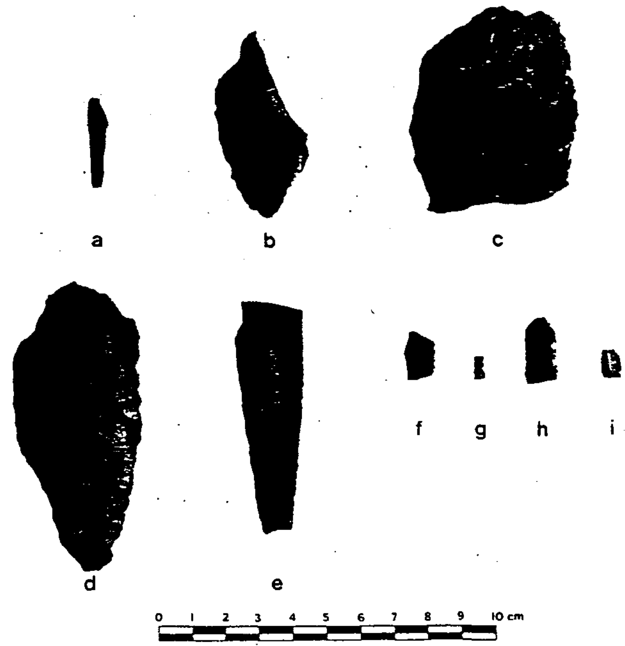


Figure 3.65. Artifacts from Sites TLM 159 (a), TLM 168 (b), TLM 169 (c), TLM 172 (d), TLM 175 (e), TLM 180 (f-i).

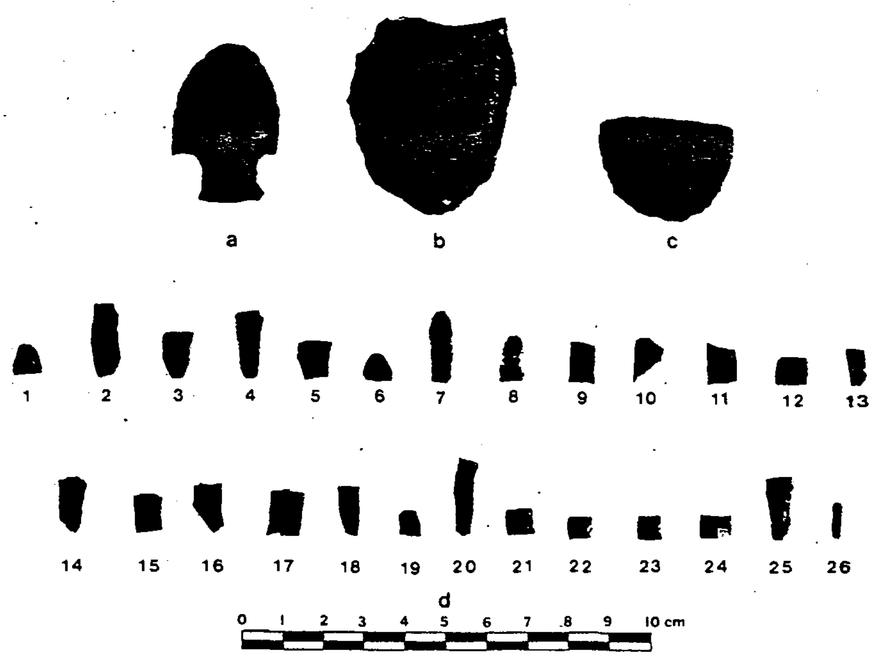


Figure 3.66. Artifacts from Sites TLM 185 (a), TLM 186 (b), TLM 205 (c), TLM 207 (d, 1-26).

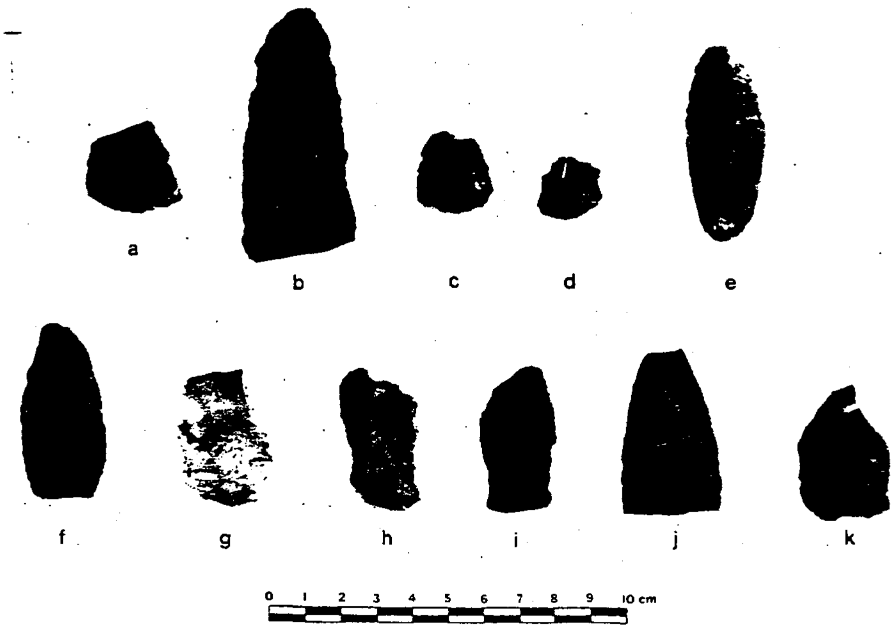


Figure 3.67. Artifacts from Sites TLM 208 (a-i), TLM 143 (j), TLM 219 (k)

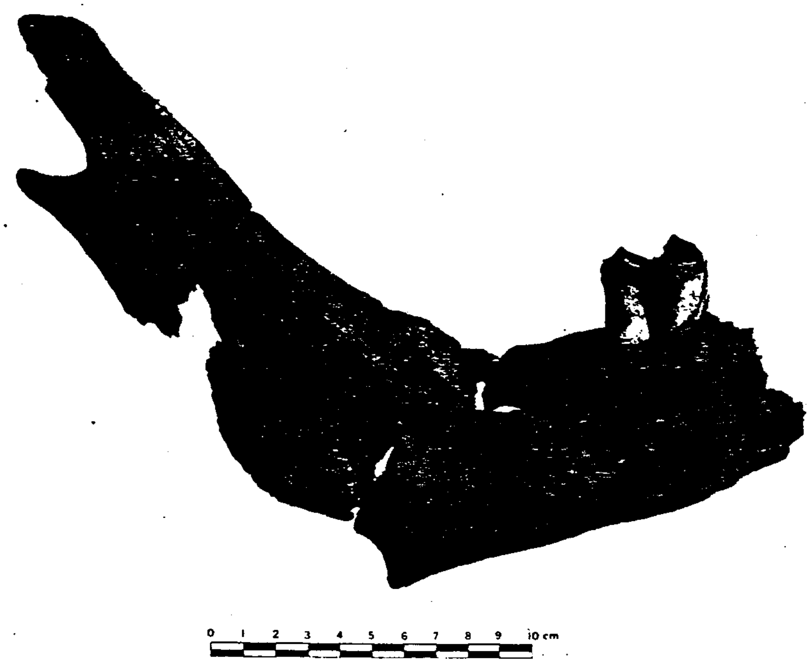


Figure 3.68. Moose Mandible, TLM 196.

3.3 - Systematic Testing

Systematic Testing TLM 016--North Arrow Site

Location: See Section 3.2

Testing:

Systematic testing at TLM 016 during the 1983 field season consisted of the excavation of four 1 m by 1 m test squares. Three of the squares were located in the immediate vicinity of a surface erosional feature where a series of tests were excavated in 1978 (Bacon 1978). The 1983 squares were positioned in a checkerboard pattern in order to intersect Test A and Test B (Figures 3.69, 3.70) located in 1981 (Dixon et al. 1982a: 3-9 - 3-11). This configuration also provided a 3 m continuous profile from N99 to N102. An additional square was positioned 4 m southeast of the three contiguous squares. Excavation of this square was intended to address questions regarding site extent. The goals of systematic testing at TLM 016 were to determine stratigraphic position, content, and extent of the occupation reported by Bacon (1978), and to obtain additional information regarding the occupation thought to be associated with the Watana/Oshetna tephra contact. A Corps of Engineers survey monument (WA 16 1978) was used as the site datum and given the grid reference N100/E100. Additional testing at the site included four shovel tests placed north and east of the excavation area (Figures 3.69, 3.70).

Discussion:

In 1978, archeological clearance work was conducted under a contract with the Corps of Engineers (Bacon 1978). TLM 016 was located as a result of this initial investigation of the Upper Susitna study area. The site was identified by the presence of six flakes in a surface exposure. Material types included basalt and argillite; 1 of the argillite flakes has continuous retouch or edge damage along one of the margins. Subsurface testing was conducted in the immediate vicinity of

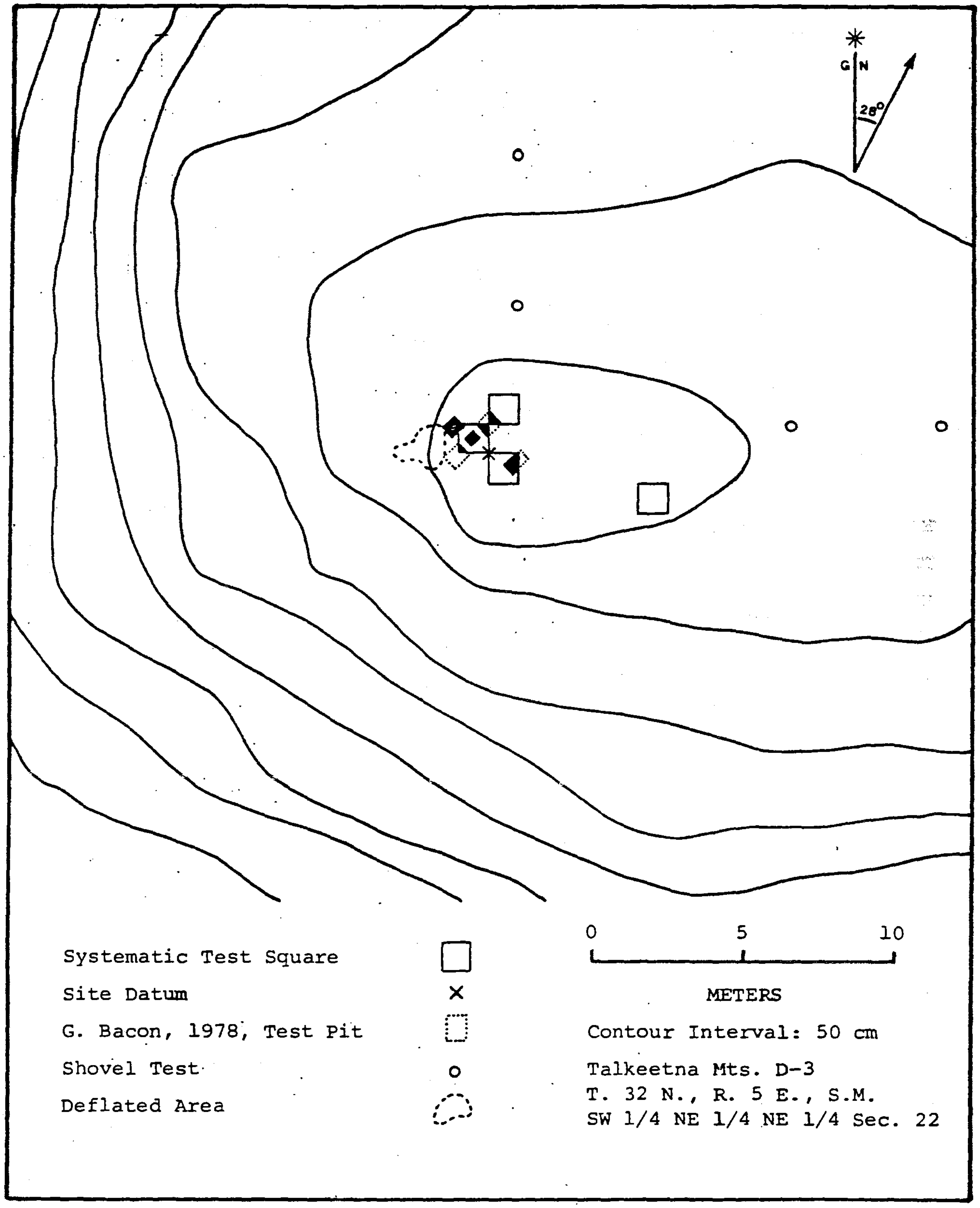


Figure 3.69. Site Map TLM 016.

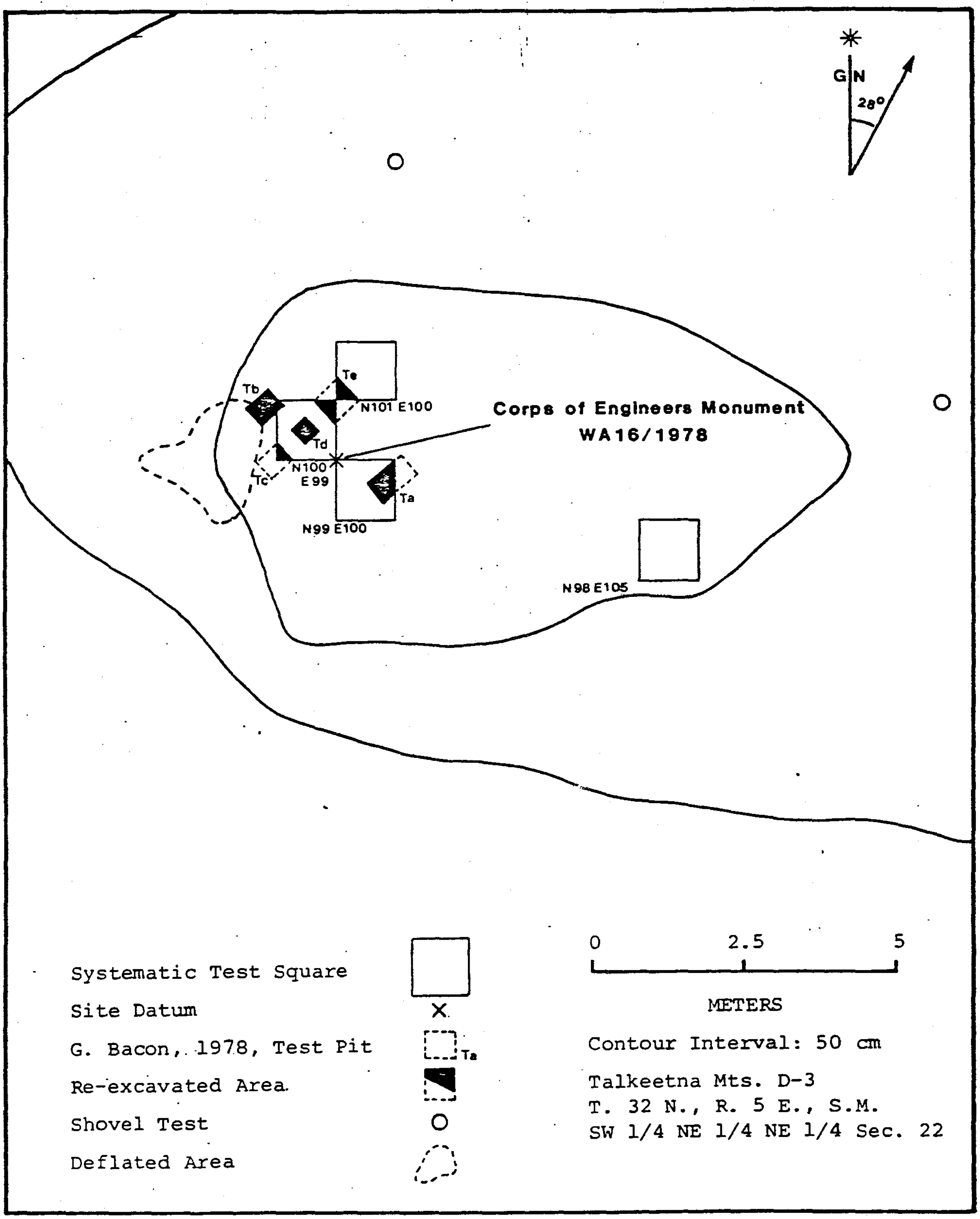


Figure 3.70. Site Map TLM 016.

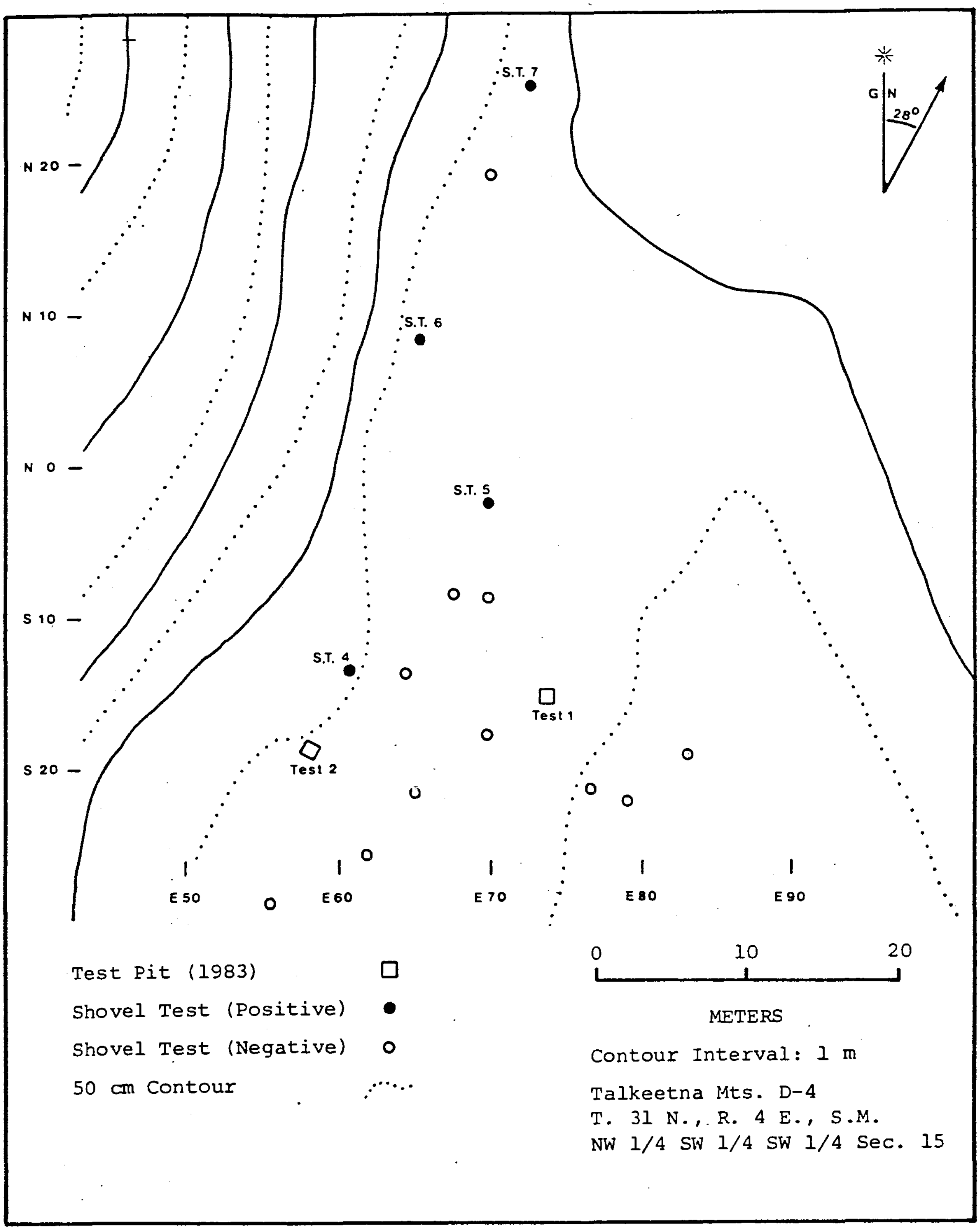


Figure 3.74. Reconnaissance Level Testing North ½ TLM 030.

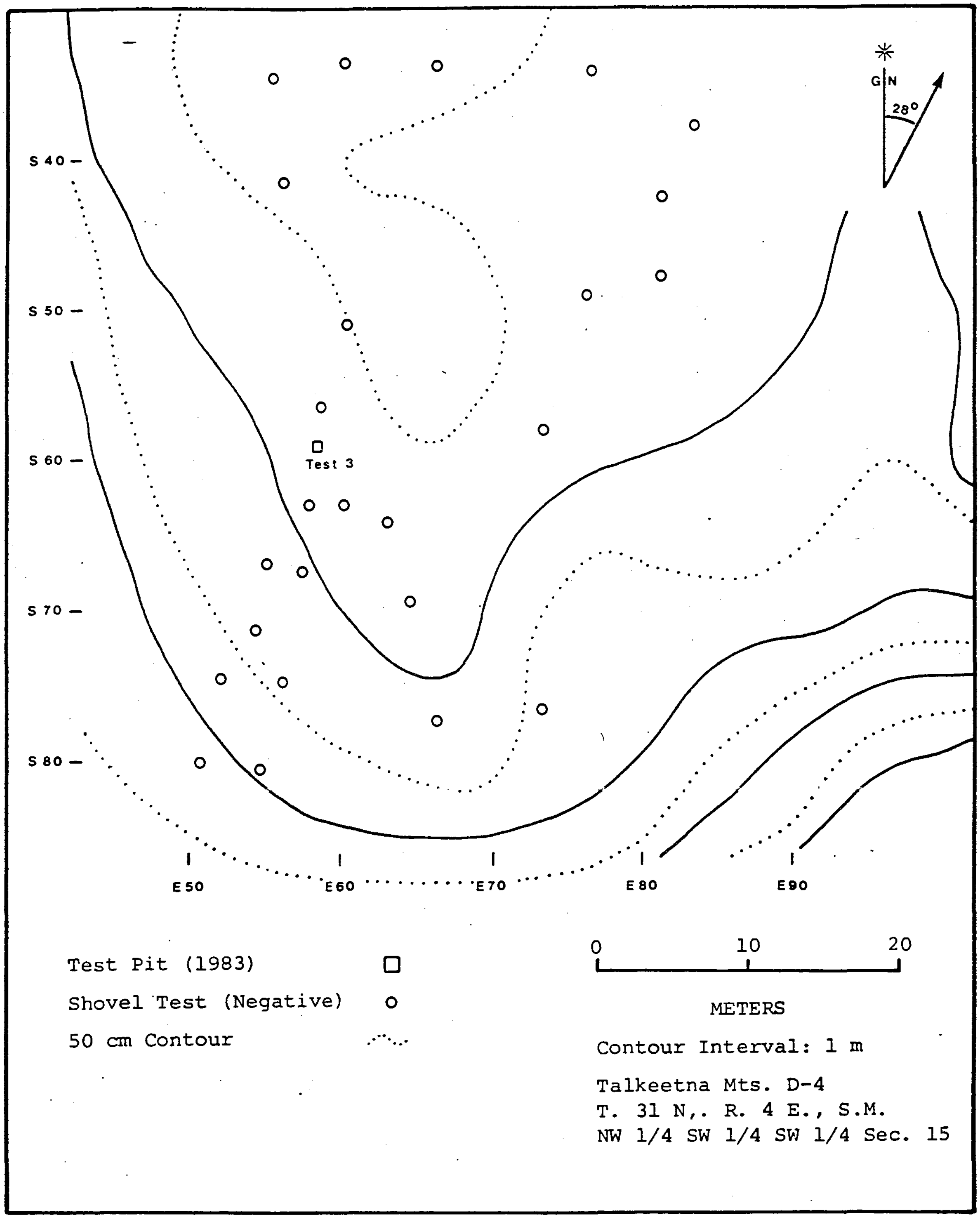


Figure 3.75. Reconnaissance Level Testing South ½ TLM 030.

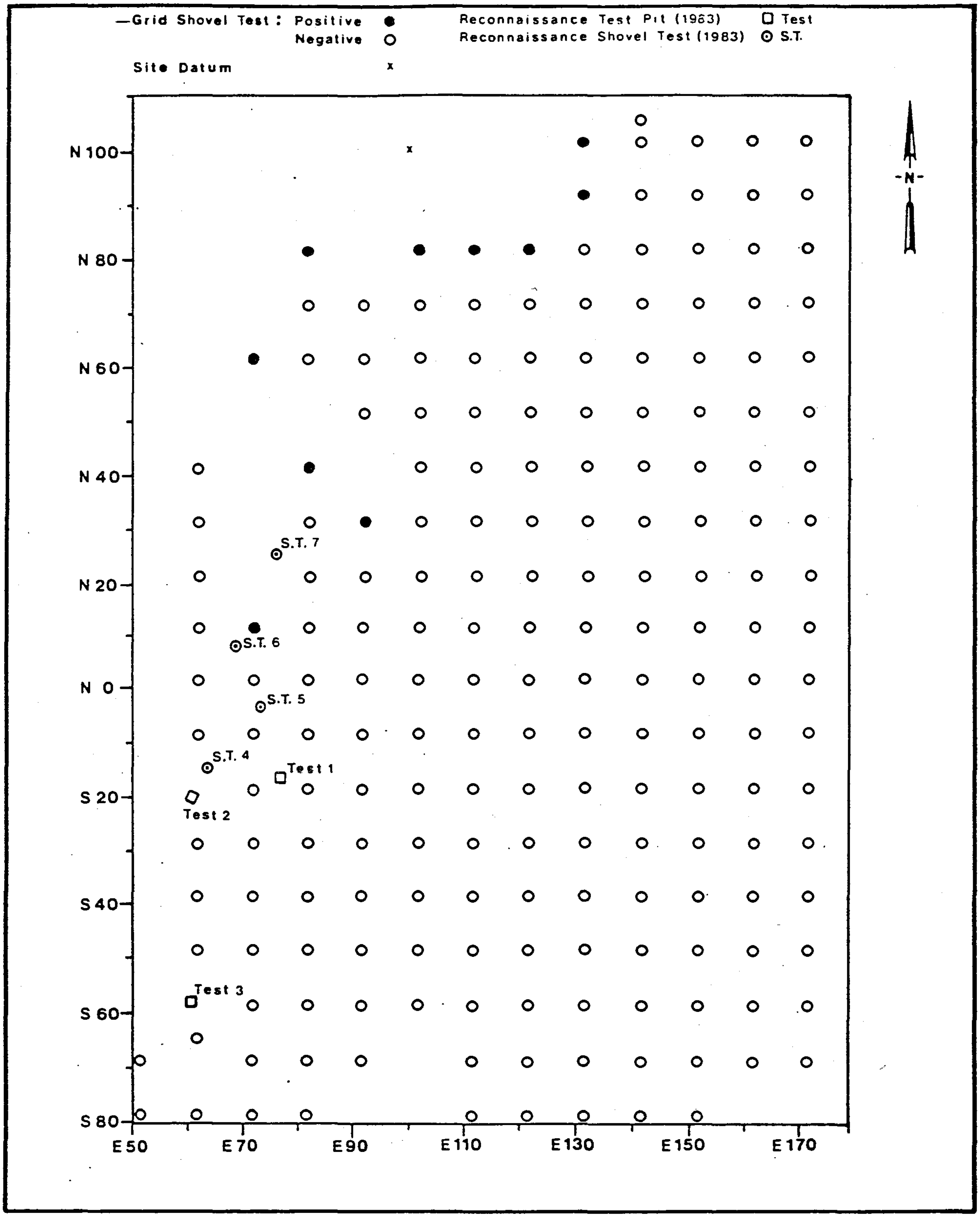


Figure 3.76. Grid Shovel Testing TLM 030.

The four test pits that contained artifactual material (test pits 1, 3, 4, and 5) were located on top of the terrace. No artifacts were located in an additional test pit (Test Pit 2) which was situated on a bench ca. 2 meters below the main terrace area. The 1980 artifact inventory from the test pits includes 519 flakes and 3 tools. Flakes are primarily basalt with a number of other material types represented. Tools consist of a chert projectile point base (Test Pit 1; UA80-77-89), a side-notched basalt biface (Test Pit 1; UA80-77-327), and a retouched basalt flake (Test Pit 5; UA80-77-517). Artifactual material was recovered from within the Watana and Oshetna tephras and from the contact between these tephra units.

Charcoal samples collected from two of the test pits were submitted for radiocarbon dating in 1980. Dates of 2310 ± 220 years: 360 B.C. (Test Pit 1; DIC-1877), and 4720 ± 130 years: 2770 B.C. (Test Pit 4; DIC-1880) were obtained. The recent sample was collected from what was interpreted to be a charcoal lens at the upper portion of the unoxidized Watana and the older date was from a charcoal lens between the Watana and Oshetna tephras. The site was revisited during the 1981 field season. Test pits 1, 3 and 4 were opened in order to re-evaluate site stratigraphy particularly in reference to the radiocarbon dates. Thirty basalt flakes were collected.

<u>Systematic testing</u>: All twelve of the test squares excavated during systematic testing contained artifactual material. High densities of material were recovered from the northernmost squares which are situated on the terrace edge, with the greatest number of artifacts recovered from N105/E109. Surface artifacts that were located on a game trail in 1980 were relocated, and an argillite biface fragment or point preform (UA83-130-1956) near the base of the terrace was collected. A total of ca. 86,000 lithics, ca. 10,500 bone fragments, ca. 3,500 miscellaneous items (rock fragments, ochre, seeds, and floral and faunal specimens), and 104 tools or tool fragments were recovered. The inventory of artifacts is summarized on Table 3.8, and distribution by stratigraphic unit is summarized on Table 3.9.

Site stratigraphy at TLM 030 includes six major soil/sediment units and a paleosol. With the exception of unit 2, each of the units is divided into two or more subunits that are distinguished by variations in color and/or texture. The subunits probably result from postdepositional alterations of the original sediment. With few exceptions the vertical placement of stratigraphic units is consistent between test squares. Figure 3.77 illustrates the stratigraphic relationship between the various units, and Table 3.10 provides descriptive information on the units and subunits defined at the site.

The stratigraphic sequence at TLM 030 consists of ca. 30 cm of fluvial and volcanic sediments overlying glacial deposits. Glacial deposits of sandy drift, gravels, pebbles, and cobbles form the basal unit (unit 6). The upper 10 to 20 cm of the glacial material is weathered and oxidized (unit 6a). The unit is moderately developed as indicated by concretions and cementation of the sand particles. The glacial material is overlain by a very fine silt to clay-sized sediment that contains sand grains and small pebbles (unit 5). This sediment is probably fluvial in origin and is related to the nature of kame terrace formation.

Sediments that are volcanic in origin form the bulk of the sedimentary material. These tephra sediments are superimposed over the fluvial sediment. The matrix contains silt-sized particles with glass shards and particles with glass mantles. At least four tephra events have been substantiated by petrographic analysis of samples collected from the site. Only three of the tephras are identifiable in the field, and the divisions between these tephra units are based on distinctive color and texture variations. Characteristics of color and texture may be attributed to soil forming processes. The tephra designations, according to their order of deposition, are as follows: Oshetna (unit 4b), Watana (unit 3), and Devil (unit 2).

Unit 4 refers to all of the sediments between the paleosol, or the Watana tephra (unit 3) in places where the paleosol is absent, and the fluvial deposits (unit 5). While the Oshetna tephra (unit 4b) is the predominant unit in this stratigraphic position, a number of localized

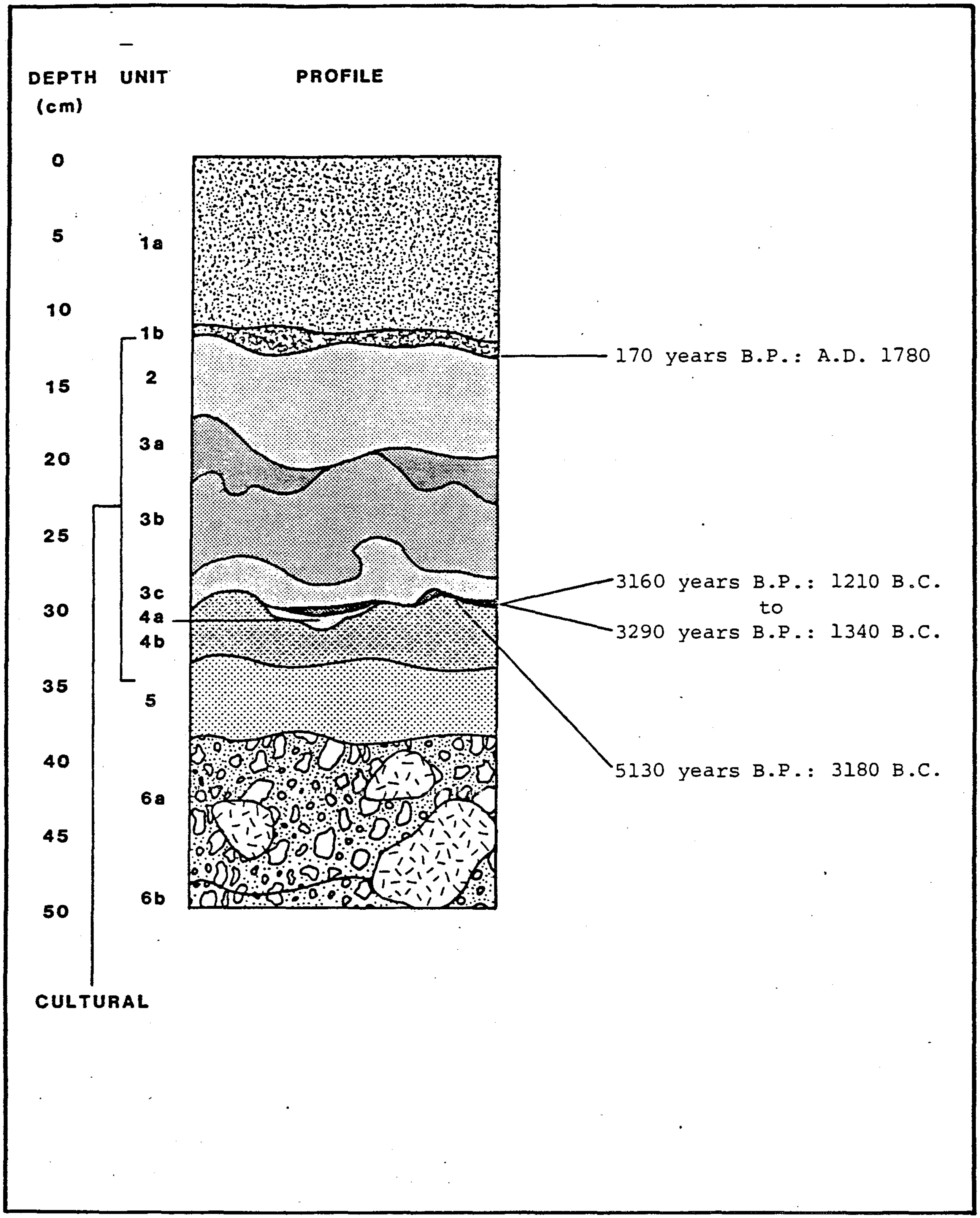


Figure 3.77. Composite Profile TLM 030.

subunits are also identified (units 4a, 4c, 4d, 4e, 4f and 4g). Unit 4a is a very fine silt sediment that is sometimes present in isolated thin lenses between the paleosol and unit 4b, the Oshetna tephra. Units 4c, 4d, and 4e occur at the same relative stratigraphic position as the Oshetna tephra. Units 4f and 4g are located within the Oshetna tephra. These additional subunits are sporadic in occurrence and are probably the result of prehistoric cultural modification of the original sediment.

A paleosol is located between the Watana (unit 3) and Oshetna (unit 4b) tephras. The paleosol appears as a discrete discontinuous lens that is characterized by small to medium-sized charcoal pieces and carbonized organics. Although the paleosol lacks continuity, it is located in all twelve of the test squares.

The Watana tephra (unit 3) has the greatest depth of any of the tephra units defined at the site. The unit may actually represent the accumulation of more than one episode of volcanic ash deposition. The subunits of unit 3 (units 3a, 3b and 3c) are probably related to variations in the accumulation of iron oxides and organics in the volcanic sediment. Distinctions between subunits are based on color and texture with variation from a fine yellowish brown matrix (unit 3c) at the lower extent of the unit to a granular dark reddish brown or reddish black matrix with concretions (unit 3a) at the upper extent of the unit. Organic material is also often associated with the occurrence of both current and abandoned ant nests. During excavation these ant nests were sterile discrete areas distinguished by a waxy texture and consolidated sediment. These disturbed areas are also included under the unit 3a designation. The Devil tephra (unit 2) overlies the Watana tephra and is the uppermost unit in the tephra sequence.

The present site surface is comprised of a living, fibrous vegetation mat (unit 1a) and a thin lens of decayed plant material (unit 1b). The predominant species is sphagnum moss averaging 15 cm in thickness. The moss is interspersed with roots and stems of herbaceous species. Decayed tree limbs and stumps are incorporated into the organic layer.

The insulating properties of the vegetation mat promotes frozen soil conditions as noted in sediments in peripheral areas of the site. Variation in the thickness of the unit in the excavation area may be correlated with differential cryoturbation of the sediments between test squares.

Disturbance of the stratigraphic units as a result of natural processes of cryoturbation, bioturbation, and root invasion is apparent. Cryoturbation is the primary source of disturbance of the volcanic sediments as indicated by the convoluted appearance of contacts between these units, and the mottled appearance of the Watana tephra subunits. In the Oshetna tephra artifacts followed the undulating surface of the upper contact, and while artifacts would frequently appear vertical in orientation they would in actuality be following the contours of the unit 4b surface. Cryoturbation has probably resulted in the displacement of artifacts from their original depositional context.

During systematic testing ca. 86,000 lithic specimens were recovered, and later classified according to their morphological attributes and raw material type. The use of a generalized classification scheme, as described below, in the initial analysis allows for more specific research on raw material preferences or availability, stages of lithic reduction, spatial distribution of artifact classes, and comparison between cultural components to be conducted in the future.

Two major categories were considered in the morphological analysis of lithic material. The first, tools, is discussed separately below. Tools are defined as artifacts that show signs of secondary modification, use modification or manufacture for a specific purpose. The second category, lithic debitage, comprised the far greater percentage of artifacts at the Fog Creek Site. Relevant classes of debitage include flakes, angular shatter or exhausted flake cores, cobble fragments and cobbles. Flakes retaining attributes of manufacture, flake fragments and small pieces of shatter that are thin in cross section are combined within the flake class, constituting 99.9% of all artifacts at TLM 030. A further subdivision of the flake class by size was made during laboratory screening of all flakes recovered from the field. Flakes separated from the matrix in the field plus the bulk samples (unseparated matrix and flakes) were passed through 1/8" mesh screen, while other selected samples were only fine screened, or passed through 1/16" mesh. Regardless of screening procedure, all flakes of less than 1/8" in size are listed as a group in Table 3.8.

Also included with the debitage category of lithics were angular shatter or exhausted flake cores, which consist of lithics that have been worked on all surfaces but often lack bulbs of force or other characteristics that are diagnostic of flakes. Cobble fragments, some of which contain negative bulbs of force, are pieces that have cortex on the dorsal surface and have a rounded dorsal contour. Cobbles were deemed artifactual if they had been modified and/or were exotic to the stratigraphic unit in which they were found.

Nine general classes of raw material were identified and include argillite, basalt, chalcedony, chert, chert/chalcedony, granite, obsidian, quartzite, and rhyolite. The classes represent four broad groups related to rock genesis, and can be described as extrusive igneous rocks and glass (basalt, rhyolite, and obsidian), intrusive igneous rock (granite), siliceous sedimentary material (argillite, chalcedony, chert, and chert/chalcedony), and metamorphic rock (quartzite).

While the four major groupings based on rock genesis are mutually exclusive, gradations of mineral composition occur within each group, sometimes making it visually difficult to discriminate between raw material classes. Distinctions were made, however, on the basis of grain size, gross mineral composition, and light transmission. For example, both chalcedonies and cherts are cryptocrystalline silicas, but a distinction between the two can be made on the basis of translucency, i.e., chert is opaque whereas chalcedony is translucent. Materials were further subdivided on the basis of color, using a Munsell Soil Color Chart to standardize color categories. The trait of color generated 13 subclasses for chalcedony and 20 subclasses for chert.

The majority of debitage is composed of basalt, representing 92% of the total lithic assemblage. It is the only material that consistently has cortex present, and is represented in the full range of morphological classes (i.e., flakes, exhausted flake cores, cobble fragments, and cobbles). The cortex of the basalt has a distinctive weathered appearance and its contour indicates that the source was fluvial cobbles. Argillite is the second most common material, representing 6% of the collection. With the exception of one piece of angular shatter and one cobble fragment, all of the argillite debitage are classified as flakes. Chalcedony and chert debitage comprises over 1.5% of the lithics. The remaining raw materials of rhyolite, obsidian and quartzite are rare and collectively do not account for more than 0.5% of the total. In addition to the above items, blocky pumice fragments, thermally fractured rocks and rock fragments, and shale fragments were also collected.

One hundred four tools or tool fragments, classified as projectile points, preforms, bifaces, core tools, endscrapers/scrapers, retouched flakes, modified pebbles, and cobbles were recovered. Examples are illustrated in Figures 3.97 through 3.102. The vast majority of the artifacts were recovered from the 3/4b contact and unit 4b. Two retouched flakes and a biface fragment were recovered from the contacts of 2/3, 3b/c, with four tool fragments being found at the contact of 1/2 and within unit 2. One interesting find which demonstrates that vertical displacement has occurred between the upper and lower levels of the site is an argillite biface fragment (UA83-130-1939) from the Devil tephra (unit 2) which was found to articulate with a fragment (UA83-130-1950) from the Oshetna tephra (unit 4b). The atypical weathering on the fragment from the upper level exceeds that of other artifacts from unit 2, and thus is indicative of an increased length of exposure. The three tools from middle stratigraphic contexts may also have their origins in other levels but have subsequently been displaced.

Included within the tool inventory are 14 relatively complete projectile points, 7 point bases, 1 medial point fragment, and 3 point tips. All pieces but one tip were recovered from the upper contact of the Oshetna tephra or within the Oshetna tephra. Basalt and argillite are the primary lithic materials employed in projectile point manufacture, with chert and rhyolite being used infrequently. Varying from triangular to lanceolate in outline, the length of complete points ranges from 26 to 63 mm, width from 18 to 30 mm, and thickness from 3.9 to 10.3 mm. Most frequently, however, points measured between 43 and 49 mm in length and 6.4 to 6.9 mm in thickness. The majority of the complete points and point bases have side notches, concave to straight bases, and normally basal thinning and/or grinding. The mode of flaking varies from non-patterned to collateral, with secondary flaking or retouch present on the margins of three of the projectile points. Bifacial retouch forms the hafting elements of a point made on a flake.

The three preforms recovered from the site can all be described as bifaces and may possibly represent one stage in projectile point manufacture. Ranging in shape from tear-shaped to lanceolate, the preforms exhibit bi-convex to slightly flattened cross sections. The two complete specimens are approximately 65 mm in length. Primary flaking is apparent on both faces of the preforms and varies from irregular flakes terminating in step and hinge fractures to collateral flakes.

A total of 31 bifaces, 16 complete and 15 fragmentary, were collected from TLM 030. In general, these basalt and argillite tools can be described as roughly ovate in shape, with irregular flaking, and lacking secondary modification. This may indicate that they had been discarded during manufacture. The 19 basalt bifaces and fragments contrast with those made from argillite in size, variability of shape, and amount of retouch. The basalt specimens are generally smaller than the argillite specimens, ranging from 50 to 85 mm compared to the 60 to 113 mm length of the argillite pieces. Ranging from round to triangular to elongated in shape, the basalt bifaces also vary from bi-plano to bi-convex in cross section, and exhibit irregular to continuous and from partially unifacial to mostly bifacial retouch. In contrast, the argillite bifaces have irregular to bi-convex cross sections and exhibit relatively continuous bifacial retouch.

Two basalt core tools, roughly ovate to tear-shaped, with multiple retouched edges and with some cortex present, were present in the lower site stratigraphy (unit 4b). The tear-shaped specimen has two edges that converge to form a point. This specimen measures 80 mm in length compared to the 65 mm length of the more ovate specimen.

Systematic testing produced 10 endscrapers of argillite, basalt, chert, and rhyolite, plus one argillite scraper. All of the endscrapers have convex working margins with moderate to steep unifacial retouch, typically on the dorsal surface. The largest endscraper is the single one of argillite, made on an irregular flake measuring 62 mm. The four basalt endscrapers, ranging from thumbnail to tear-shaped, measure 21 to 40 mm in length, while the three complete chert endscrapers, roughly tear-shaped, vary from 38 to 47 mm. The working edges of the four chert specimens encompass more than the end and continue onto one of the adjacent margins. The one rhyolite (?) endscraper, tear-shaped and measuring 45 mm in length, also has unifacial retouch along part of one lateral margin. The one argillite scraper, measuring 54 mm and exhibiting a straight to convex working edge, has steep unifacial retouch on the dorsal surface of one of the lateral margins and on the distal end.

Of the 28 retouched flakes recovered 4 are made of argillite, 21 of basalt, 2 of chert, and 1 of obsidian. Ranging in size from 45 to 68 mm, the argillite retouched flakes are irregular to roughly ovate in shape, with unifacial and bifacial retouch of varying intensity on the margins. The basalt flakes range in size from 23 to 74 mm, have retouch generally limited to the margins, and comprise the full spectrum of shapes from circular to ovate to triangular to elongate. Three of the basalt specimens have bifacial retouch along at least one margin, and 18 have unifacial retouch, with the majority exhibiting retouch on their dorsal surface. The chert flakes, one irregularly shaped and measuring 49 mm, the other ovate and measuring 42 mm, both have marginal unifacial retouch on their dorsal surfaces. The single retouched obsidian flake is roughly square, measures 23 mm in length, and has unifacial retouch on both dorsal lateral margins. An interesting observation is that in each of the nine cases in which flakes have been retouched on the distal margin, it is this margin that is the longest.

The final category of tools is modified pebbles and cobbles. One cobble, measuring 108 mm, is ovate with bifacial retouch on opposing margins. The other cobble, measuring 110 mm, has battering present at one end and is heavily modified on the opposite end as well as on an adjacent portion of one side. Battering is present on opposing ends of both pebbles, one a round quartz hammerstone measuring 42 mm and the other a 75 mm ovate-shaped possible hammerstone.

The faunal remains from TLM 030 are comprised of ca. 10,500 calcined to heavily burned bone and tooth fragments, generally ranging from 5-15 mm in length (Table 3.11). Much of the bone has a dark brown mottled appearance. The fragments, almost entirely attributable to medium-large mammal, are unidentifiable below the class level, except in the case of three burned molar fragments and one vertebral facet that could be classified as Artiodactyl, and one phalanx fragment probably of caribou. The order of Artiodactyla is represented in Interior Alaska primarily by caribou (Rangifer tarandus), moose (Alces alces) and Dall sheep (Ovis dalli). In terms of recognizable skeletal elements, medium-large mammal long bones and possible rib fragments are identified. Only three fragments are recognized as small-medium mammal, and only one fragment possibly belonged to a bird.

Bone occurred in nine of the 12 test squares at the Fog Creek Site (no bone was found in N104/E104, N103/E105, or N104/E106). In five of these squares, however, the fuanal assemblage totaled less than 10 fragments for the entire square. Only in N105/E109 and N104/E110 did the square total exceed 1000 bone fragments. Stratigraphically, bone occurred from unit 3 through the contact between units 4b and 6. By far the heaviest concentration was found in stratigraphic unit 4b, particularly in N105/E109. Although bone was recovered from each quadrant in this test square from 4b, the greatest density occurred in the southwest quadrant where over 1000 finely comminuted bone fragments of 1-5 mm and ca. 1700 fragments ranging from 5-23 mm were lying.

In addition to lithic and faunal remains, ochre pieces, thermally altered rock, and small angular rock shatter were accessioned. Floral specimens consist of 37 seeds and one equisetum macrofossil. A single beetle carapace was recovered from the sediments.

Artifactual material was found in association with all six of the soil/sediment units, but was predominantly recovered either from the contacts with the tephra units or within tephra sediments. The location of artifacts in sediments other than the defined tephra units may be the result of displacement.

Criteria used to define components at the site in order of prominence are: 1) ability to delineate a surface of level associated with artifactual material, 2) presence of sterile strata separating one level of artifacts from another, 3) the recovery of diagnostic artifacts that would suggest a cultural horizon not represented in other levels, and 4) the presence of raw material or artifact types absent in other levels. The ability to establish at least one of these relationships was considered sufficient to define a component. Using the criteria two distinct components can be identified at the Fog Creek Site. Artifactual material from the middle stratigraphic units and contacts (2/3, 3, 3a,b, 3b/c, and 3c) was not assigned to either the upper or lower component and did not meet the previously mentioned criteria. Parsimony dictates that a distinction can not be made between the middle units and the defined components. A third or middle component may exist at the site, but the available information does not allow definitive statements to be made concerning the origin of this artifactual material. The distribution of artifacts by test square for the various levels is illustrated in Figures 3.78, 3.79, and 3.80.

The upper component is positioned stratigraphically at the contact between the finely sorted organic layer (unit 1b) and the Devil tephra (unit 2). Artifacts located within units 1b and 2, and at the contacts

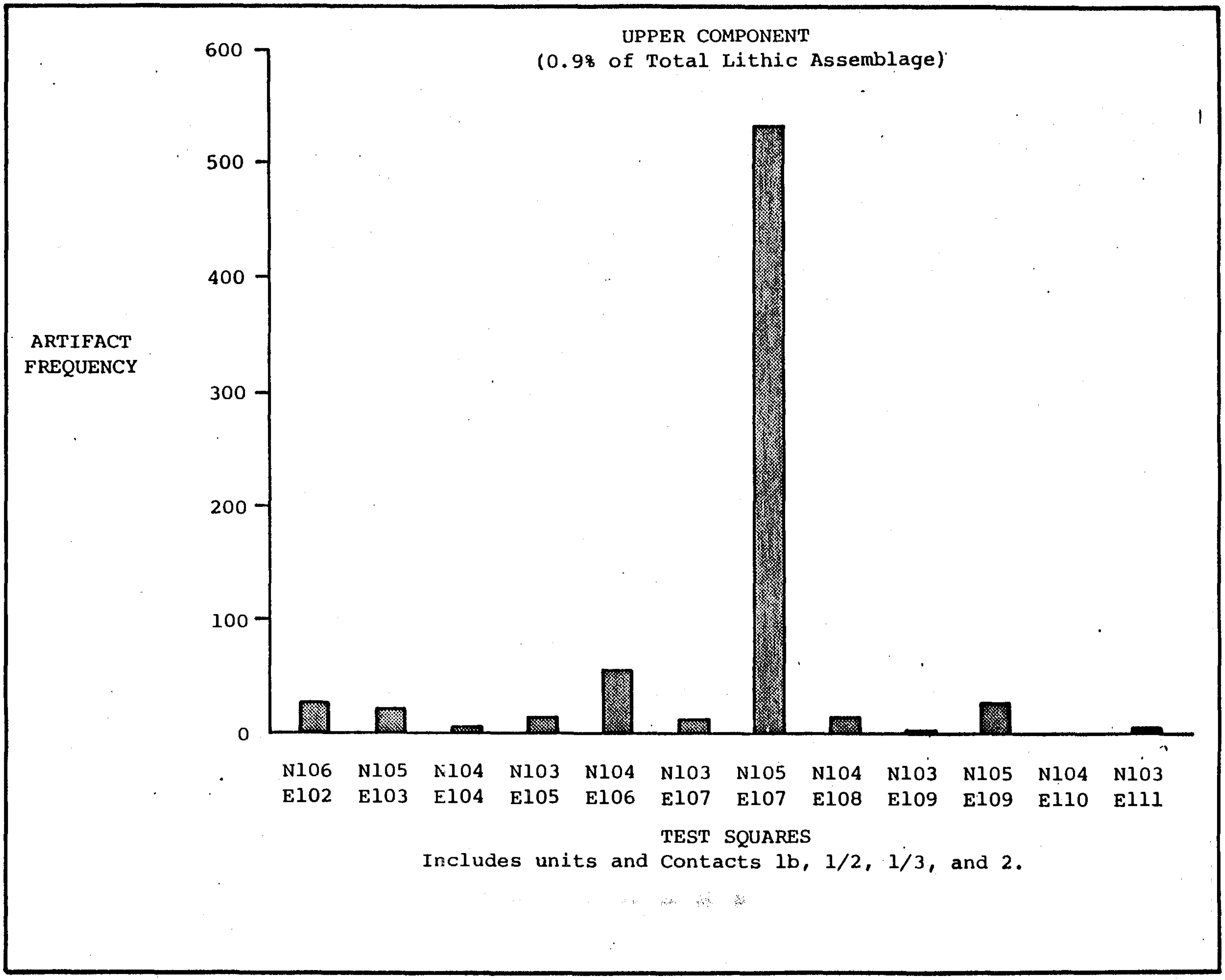
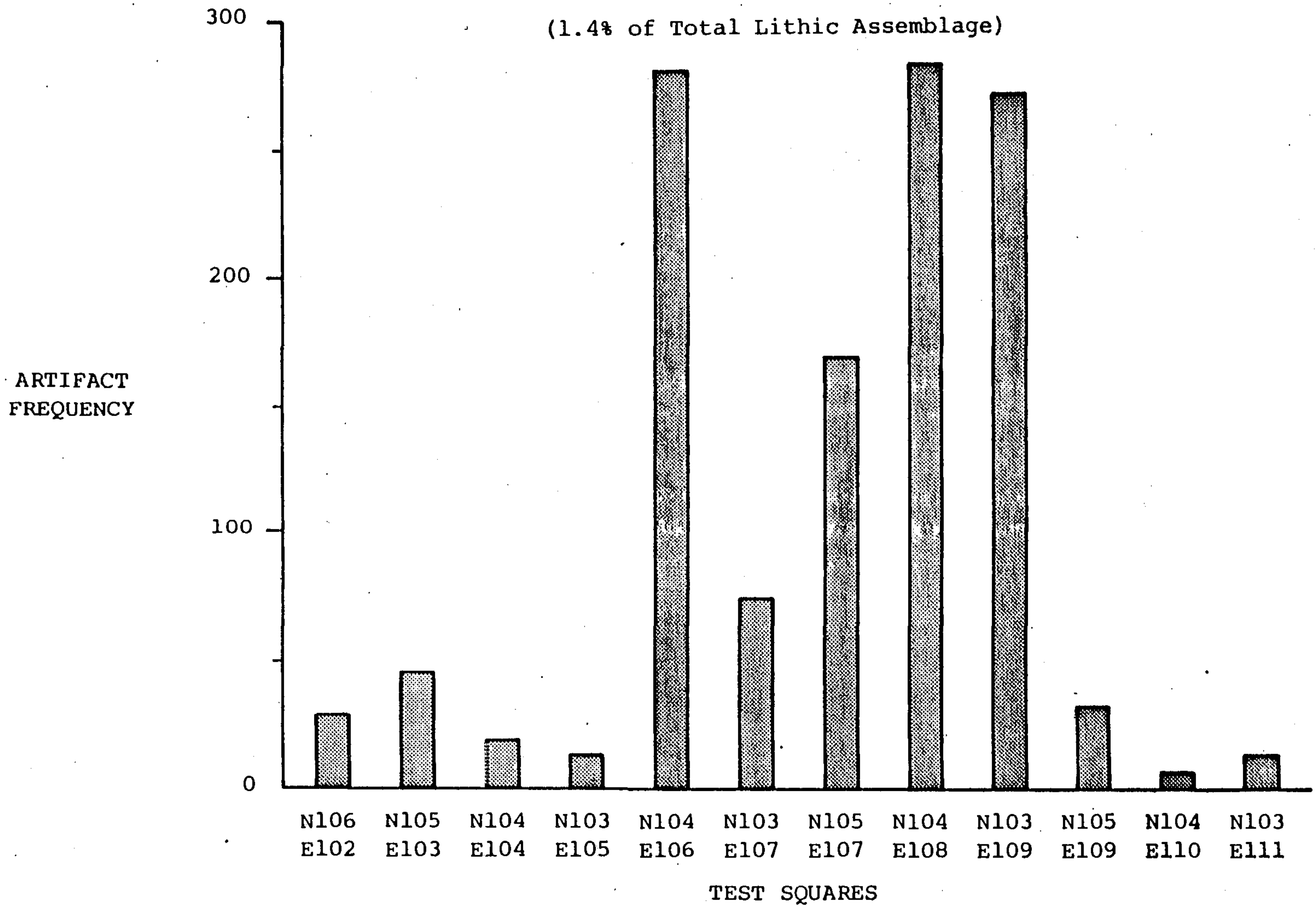


Figure 3.78. Artifact Frequencies by Test Square: Upper Component TLM 030.



Includes units and contacts 2/3, 3, 3a,b, 3b/c, 3c.

Figure 3.79. Artifact Frequencies by Test Square: Middle Units TLM 030.

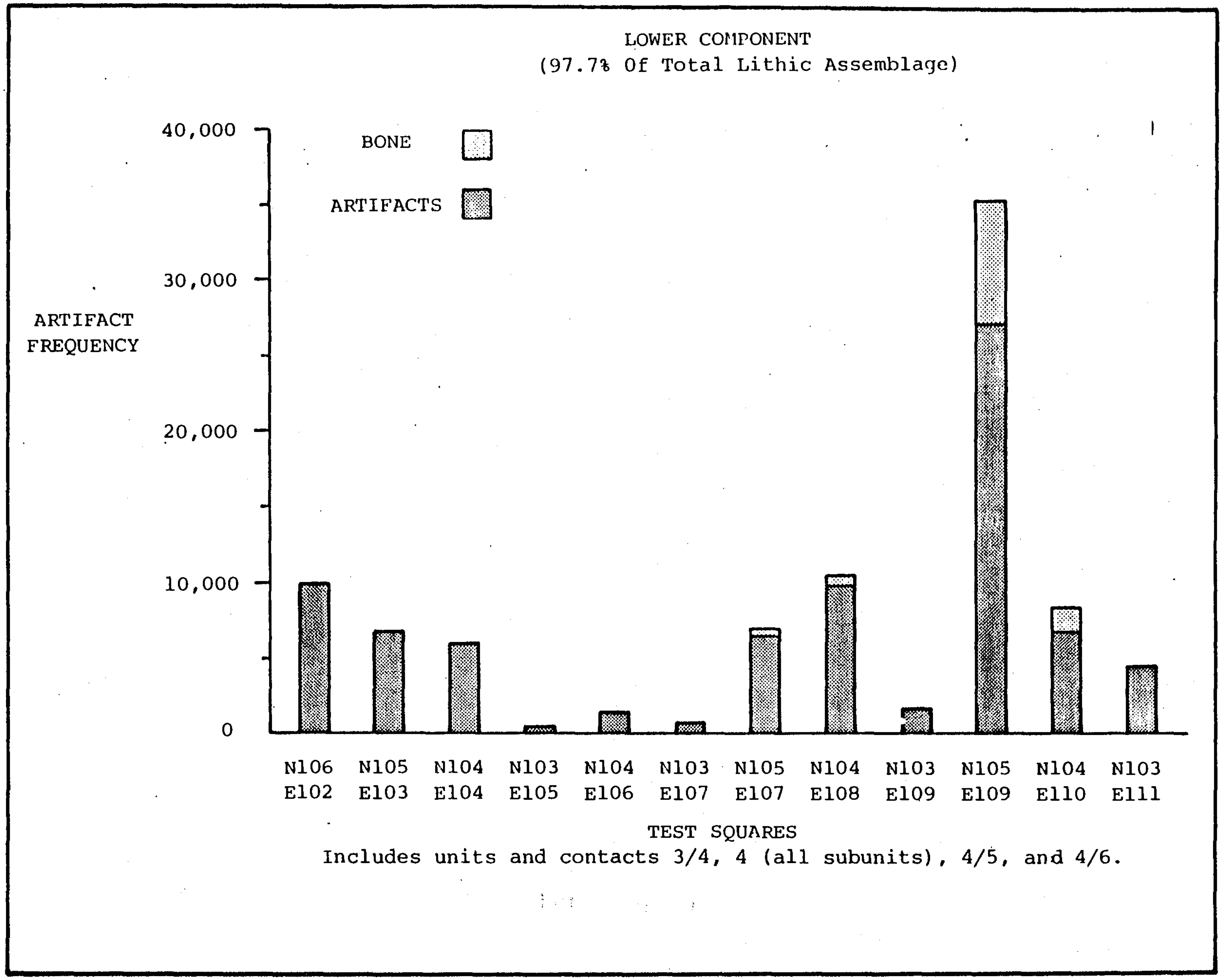


Figure 3.80. Artifact and Bone Frequencies by Test Square: Lower Component TLM 030.

between 1/2 and 1/3 were assigned to this component. Over 700 lithic artifacts were recovered from this stratigraphic context and, with the exception of four tools/tool fragments and fourteen ochre pieces, all of the material consisted of unmodified flakes of a variety of material types. Three tools recovered from the 1/2 contact and unit 2 consist of a chert endscraper (UA83-130-1124), a retouched basalt flake (UA83-130-820), and a basalt projectile point tip (UA83-130-1477). The fourth tool (UA83-130-1939) articulates with a fragment (UA83-130-1950) from the Oshetna tephras (unit 4b), to form a complete argillite biface. The location of these two fragments in temporally distinct sediments indicates that displacement has occurred and that there was mixing of artifacts from different components. The distribution of artifacts between the test squares was disproportionate with nearly three-quarters of the artifacts located in N105/E107 (Figure 3.78).

The highest density of artifactual material is associated with the lower component, representing nearly 98% of the systematic testing inventory. The lower component is associated with all aspects of the Oshetna tephra unit. Artifacts found within the tephra (unit 4b), at the contacts of the tephra with other units (contacts 3/4, 4/5, and 4/6), and in units at the same relative stratigraphic position (units 4c and 4d) were assigned to the lower component. Three additional stratigraphic units are also associated with the lower component. However, these latter units were not defined until after excavation and artifactual material associated with the units had been recorded as belonging with unit 4b. Artifacts were found in all squares ranging from a few hundred to tens of thousands in the 1 m by 1 m test squares (Figure 3.80).

The upper contact of the artifact level was irregular but easily defined due to the quantity of lithic debitage on its surface. The lower boundary was coincident with a rapid decline in artifact concentration. Consequently, the Oshetna tephra could be isolated as a cultural level. In some areas of the site, the unit was clearly separated from the sterile upper stratigraphic level of unit 3c. The artifact level is capped by a thin, discontinuous charcoal lens that represents the paleosol. Equisetum was also observed at this contact and a sample was collected (UA83-130-3423). The paleosol developed in the interval between the depositions of the Oshetna and Watana tephras. The location of artifacts throughout the Oshetna tephra unit may be related to the unconsolidated nature of the sediment during the period of occupation. Lichen was found on the upper surface of a number of artifacts indicating that these artifacts were exposed for a period of time prior to the development of the paleosol.

Lack of consistency in the vertical placement of stratigraphic units was evident within unit 4 in the eastern portion of N105/E107, the northern half of N104/E108, and within N105/E109. In N105/E107 and N104/E108 the Oshetna tephra appeared truncated and in N105/E109 the artifactual units were not the uniform gray color of the artifact level in other test squares. A number of subunits of unit 4 that occur at the same relative stratigraphic position were defined in these three squares (units 4c, 4d, 4e, 4f, and 4g). The three test squares that lack consistency with the generalized composite profile also have much higher artifact frequencies, with the greatest concentration in N105/E109 which represents a third of the artifacts from the lower component.

Artifactual material from N105/E109 included ca. 28,000 lithic and 8,000 bone fragments in conjunction with concentrations of red ochre of which nearly 1,000 pieces were collected, and hundreds of small, angular rock fragments. The base of the larger rocks rested in the lower extent of unit 4. Bone fragments, ochre, and lithic material were exposed when the rocks were removed. In the northeast quadrant of the test square the lithic concentration formed a pavement interspersed with matrix. In some areas of the square, particularly in the southwest quadrant, artifacts were within an ochre-stained matrix. The density of material in this square and the truncated nature of the sediments suggest that cultural material may be concentrated around a feature, such as a hearth or a more complex structural feature.

Ninety-four of the 104 tools and diagnostic artifacts recovered during systematic testing are in association with the lower component. These artifacts are representative of several material types, stages of manufacture, and functions. The majority of tools consist of flakes with unifacial or bifacial retouch along one or more margins. In addition, a number of side-notched projectile points, endscrapers, bifaces and biface fragments, and modified cobbles were recovered. This material was summarized above. In N103/E111 a cluster of argillite bifaces was associated with a subangular cobble. Six complete bifaces and one fragment, which articulates with a fragment from unit 2, are associated with this cluster.

All but five of the ca. 10,500 bone fragments recovered during systematic testing originate from the lower component and most of this material was recovered from four of the twelve test squares (N105/E107, N104/E108, N105/E109, and N104/E110). A discussion of these remains appeared above.

Ten charcoal samples were submitted from the site for radiocarbon dating. Table 3.12 summarizes relevant information concerning the individual samples. Nine of the samples were collected from either the paleosol between the Watana (unit 3) and Oshetna (unit 4b) tephras or in association with the Oshetna tephra. The tenth sample was collected from the lower extent of the finely divided organic layer (unit 1b) to its contact with the Devil tephra (unit 2).

The sample from the finely divided organic layer (unit 1b) provided a date of 170 ± 90 years: A.D. 1780 (Beta-7684). The sample was submitted to provide an upper limiting date for the deposition of the Devil tephra (unit 2) and for the upper component associated with the contact between the organic layer and the Devil tephra. Given its stratigraphic position, it is possible for the sample to incorporate carbon from the more recent organic material with which it is in close association. Therefore the date may not provide an accurate limiting date for the upper component or the deposition of the Devil tephra.

A suite of seven dates was obtained for the paleosol between the Watana (unit 3) and Oshetna (unit 4b) tephras. Multiple samples were dated in order to: (1) provide an upper limiting date for the extensive lower component and the deposition of the Oshetna tephra, (2) assess spatial variation across the test squares in dating the paleosol, and (3) determine the duration of time represented by the paleosol.

The dates from the paleosol range from 1730 B.P. to 3290 B.P. for an inclusive span of 1560 years. Two of the dates, 1730 ± 120 years: A.D. 220 (Beta-7689) and 2690 ± 70 years: 740 B.C. (Beta-7301), are more recent than would be expected given the stratigraphic position of the samples relative to other dates from the site for the paleosol. Exclusive of the above two samples dates for the paleosol range from 3160 ± 70 years: 1210 B.C. (Beta-7687) to 3290 ± 130 years: 1340 B.C. (Beta-7686) a time span of only 130 years. This reduced temporal interval should represent a reasonable upper limiting date for the lower component and the deposition of the Oshetna tephra.

Although the two youngest dates for the paleosol are from the easternmost test squares of N104/E110 (Beta-7689) and N103/E111 (Beta-7301), there does not appear to be any spatial patterning in the dates. An additional date for N103/E111 of 3270 ± 90 years: 1320 B.C. (Beta-7690) precludes the establishment of an east to west cline in dates for the paleosol.

The formation of the paleosol may span the 1560 years between 1730 B.P. and 3290 B.P. represented by the seven dates from the unit, but sampling difficulties are inherent in attempting to bracket the formation of a unit only a centimeter thick. Mixing of charcoal pieces from different periods of the paleosol in sampling the thin unit will normally generate a range of dates narrower than the true duration. Potential sources of contamination exist in the organic accumulation present in units 3a and 3b of the Watana tephra and in the downward displacement of carbon through cryoturbation. Such contamination could explain the two early dates for the paleosol.

The oldest date from the site, 5130 ± 140 years: 3180 B.C. (Beta-7302), was derived from radiocarbon dating of a large piece of charcoal. The base of the charcoal piece was within the Oshetna tephra (unit 4b), althouch the upper extent of it was associated with the paleosol. The assignment of the date to a stratigraphic level is problematic. The sample differs from other charcoal samples collected from the paleosol in that it is a single large piece as opposed to a concentration of smaller charcoal pieces. The sample may provide a fortuitous lower limiting date for the paleosol or may be cultural in origin and date the lower component directly.

The final sample, 1870 ± 120 years: A.D. 80 (Beta-7691), was collected from unit 4e in a wall of N106/E102. It was intended to date the lower component. Unit 4e is a cultural unit at the same relative stratigraphic position as unit 4b which contained carbonized matrix in direct association with artifacts. Unit 4e is positioned between the Devil tephra (unit 2) and a fine silt level (unit 5). The disconformity represented by the absence of the Watana tephra (unit 3) increases the potential for illuviation and transport of carbon from the upper levels. The contextual difficulties surrounding the sample preclude its use as a date for the lower component.

Reconnaissance testing. Due to the density of material recovered, the presence of multiple components, and the advantageous setting of the Fog Creek Site based upon initial testing of survey locale 13 in 1980, the vicinity around the confluence of Fog Creek and the Susitna River was selected as a high archeological potential area deserving of reinvestigation. In conjunction with renewed reconnaissance level testing of survey locale 13 in 1983, the remainder of the terrace south of the original find of TLM 030 was tested.

Subsurface testing was conducted on the terrace from 75 m south of the main excavation area to the stream which forms the southern boundary of this terrace segment. Seven productive shovel tests were located between 75 m and 180 m south of the main excavation area. Three of the shovel tests were expanded into 40 cm by 40 cm test pits. Figures 3.74 and 3.75 show the location of the test pits, four productive shovel tests, and negative shovel tests in the vicinity. Table 3.13 lists the artifacts from each of the productive subsurface tests. Test Pit 1, located approximately 115 m south of the systematic tests and ca. 25 m from the terrace edge, produced 32 argillite flakes. Test Pit 2, located ca. 15 m west-southwest of Test Pit 1 and ca. 15 m from the terrace edge, yielded 357 flakes of five different materials. Test Pit 3, situated ca. 40 m south of Test Pit 2 and immediately adjacent to the western terrace edge, had 13 flakes of basalt and argillite. A dusky red, 1 cm thick, lens of ochre was located within the Oshetna tephra. Material from all three test pits came from Watana and Oshetna tephra units, extending down to on top of the drift in Test Pit 2. The shovel tests, numbered consecutively with the test pits, yielded a total of 8 flakes of argillite with a single specimen of basalt. Shovel tests 4 through 7 are distributed from 50 m north of test pits 1 and 2 and 10 m to 30 m from the western edge of the terrace.

Reconnaissance testing on the Fog Creek terrace served to recover artifacts along the western edge of the terrace in stratigraphic units that may be correlated to the lower component located during systematic excavations to the north. The distribution of artifacts along the western terrace edge, thought to be contiguous with the archeological finds at the north edge of the terrace, prompted the shift from reconnaissance level survey procedures to a controlled grid testing program.

Grid shovel testing. Grid testing was initiated to define the spatial extent of the site and to determine whether artifactual material recorded during 1983 reconnaissance testing on the western terrace margin represented a separate site or an extension of the main site locus. The entire terrace was mapped and gridded as an extension of the established grid with the site datum at N100/E100. Points were established and elevations recorded at even 10 m intervals across the terrace. Shovel testing began with the easternmost grid line, E170, and continued westward to E50. Testing commenced at the southern extent of each easting grid line and proceeded to the northern terminous of the line unless cultural material was encountered. Subsurface tests were placed in the southwest corner of each 10 m grid square. The matrix was screened through a ¼" mesh and all artifacts collected by stratigraphic unit. Ten of the 224 shovel tests produced cultural material (Figure 3.76).

The artifact inventory from the ten positive grid shovel tests includes 235 lithic artifacts and 5 bone fragments. Table 3.14 provides a summary of artifacts by shovel test. The majority of lithic material consists of basalt flakes, accounting for 91% of the total inventory. A modified basalt flake (UA83-130-2119) was recovered from N80/E100. The flake is triangular in outline with continuous bifacial retouch along one side.

Artifacts were recovered from a number of stratigraphic contexts corresponding to both components defined during systematic testing. Overall, the stratigraphic sequence of the shovel tests is represented by the stratigraphic section from systematic testing. All positive shovel tests were located in well-drained areas. Several negative shovel tests represented areas of very poor drainage as indicated by water-saturated sediments. A number of tests placed in low areas in the central portion of the terrace contained gravels and silts interbedded between the Watana tephra (B horizon) and the Devil tephra (eluvial horizon). The sediment may represent an episode of stream transport across the terrace.

The vicissitudes of artifact distributions are shown by the results of reconnaissance level survey in 1983 and the subsequent grid shovel testing program over the same area. Grid shovel tests placed between productive reconnaissance tests were often sterile. The discontinuous distribution of artifacts is exemplified by the sterile grid shovel tests at S10/E70 and S20/E70 despite their proximity to test pits 1 and 2, and shovel tests 4 and 5 (Figure 3.76). The limited volume of material excavated in a shovel test results in a very conservative appraisal of site limits.

Reconnaissance level testing in 1980 and 1983 in conjunction with controlled grid shovel testing provides for the delineation of the Fog Creek Site boundaries. Discussion of the site boundaries is facilitated by dividing the site into two segments. The northern segment of the site in which systematic testing was conducted extends as a ca. 40 m wide strip (N70 to N110) for approximately 60 m (E80 and E140) along the northern terrace edge. This portion of the site occupies the relatively open, well-drained region at the northwest corner of the terrace between the black spruce forest to the south and east, and the steep terrace slopes to the north and west. Clusters of large birch trees adjacent to the northern terrace edge, make this portion of TLM 030 easily discernable from the air. The western segment is contiguous with the northern segment. It starts as a ca. 20 m wide strip along the western terrace edge, expanding to approximately 40 m back from the edge in the middle of the terrace. In the southern half of the terrace, the distribution of artifacts appears to taper back to the terrace edge ca. 170 m south of the systematic tests. The western segment of the site is heavily vegetated with black spruce and lacks the distinctive features of the northern segment which might concentrate prehistoric activity. The flood plain of the Susitna River west of the terrace currently supports a thick forest cover negating the beneficial vantage which the western terrace edge would convey under a more open vegetation regime.

Evaluation:

The Fog Creek Site is located on a kame terrace 900 m upstream from the confluence of Fog Creek and the Susitna River. Testing conducted during the 1983 field season indicates that the site area is expansive and encompasses the northern terrace edge which overlooks Fog Creek and the western edge paralleling the Susitna River. Lithic artifacts were recovered from shovel tests and test pits extending ca. 180 m along the western terrace edge and ca. 60 m along the northern terrace edge. The abundance of artifactual material in conjunction with the ca. 7000 square meter areal extent of the site indicates that the terrace was used intensively by prehistoric peoples.

The two components defined during systematic testing occur at the upper contact of the Devil tephra and within the Oshetna tephra. Interpretation of the number and stratigraphic position of components is in only partial agreement with the results of reconnaissance testing in 1980. Support for the upper component in the Watana tephra defined during initial reconnaissance testing was not provided by systematic testing.

However, an additional component was defined at the Devil contact. The hearth features defined in 1980 may represent a well-developed A horizon and the charcoal lens which constitutes the paleosol rather than cultural activity.

A suite of radiocarbon samples collected from a paleosol which overlies the lower component provides upper limiting dates of 3290 ± 130 years: 1340 B.C. (Beta-7686) and possibly as early as 5130 ± 140 years: 3180 B.C. (Beta-7302). The upper component can be tentatively dated based upon its stratigraphic position relative to the Devil tephra. The maximum limiting date of this component is the ca. 2300 B.P. date for the deposition of the Devil tephra.

The majority of the artifactual material was recovered from the lower component. The inventory includes lithics, floral and faunal remains and red ochre. Tools and tool fragments cover a broad spectrum. These include diagnostic artifacts of side-notched projectile points, endscrapers, and a variety of bifaces. Basalt lithic debitage, including primary reduction flakes and secondary flakes, along with a large number of bifaces and biface fragments suggests that tools of this material were manufactured at the site. Artifacts of argillite, the next most frequent material, may also have been reduced at the site, although the lack of decortication flakes may indicate initial preparation off the site. Numerous other material types constitute only a small fraction of the lithic assemblage and may not be readily available in the vicinity of the site. The generally small size of these flakes may be related to the modification of existing artifacts.

Faunal remains from the lower component indicate that the processing of small to large mammals (possibly caribou) and also birds was taking place at the site. The processing or disposal of bone is concentrated in the eastern portion of the systematic excavation. The concentration is correlated with a hearth feature and the calcined to heavily burned nature of the faunal material may have contributed to its preservation. Skeletal completeness does not allow for assessment of specific species or proximity of the kill site. Floral remains include seeds and an equisetum macrofossil.

High artifact density, in association with red ochre, and the concentration of bone in three of the 1 m by 1 m test squares indicate a feature. A hearth or more complex structural feature would explain the artifact concentration and sediment disturbance in this area of the site. A program of further excavation, microstratigraphic analysis, and spatial analysis is required to ascertain the nature of the feature.

The site may have functioned in a variety of capacities as suggested by: 1) the advantageous ecological setting, 2) proximity to water sources, 3) access between the Susitna River and the upland plateau including Fog Lakes, and 4) the generalized nature of artifact types. The multiple components indicate repeated use of the terrace for at least 3000 years. Based on its relative stratigraphic position, the upper component may possibly be related to the Athapaskan Tradition (ca. A.D. 300 - A.D. 1900), although it is important to note that there are no diagnostic artifact types to confirm this assumption. The lower component can be attributed to the Northern Archaic Tradition (ca. 1500 B.C. - ca. 3000 B.C.), based on the diagnostic elements of the artifact assemblage, stratigraphic position, and radiocarbon dating. The Fog Creek Site holds high potential for a more complete delineation of the Northern Archaic Tradition and the ecological setting and extremely high frequency of artifactual remains suggest the site may have functioned as a seasonally reoccupied camp or possibly a more permanent type of settlement. Presently less than one-third of a percent of the site area has been tested.

TABLE 3.8

ARTIFACT SUMMARY - SYSTEMATIC TESTING, TLM 030.

Tools

13	Projectile points
	5 argillite (UA83-130-127, 130, 1923, 1932, 1949 and 1951)
	8 basalt (UA83-130-48, 349, 351, 867, 1005, 1915, 1931, 1935)
7	Projectile point bases
	2 argillite (UA83-130-126, 1952)
	4 basalt (UA83-130-350, 441, 442, 1917)
	1 white chert (UA83-130-1937)
1	Projectile point medial section (argillite) (UA83-130-1930)
3	Projectile point tips
	1 basalt (UA83-130-1477)
	1 black chert (UA83-130-880)
	1 rhyolite (?) (UA83-130-1957)
1	Projectile point on a flake (basalt) (UA83-130-124)
1	Projectile point or point preform (basalt) (UA83-130-353)
2	Biface or point preforms
	1 argillite (UA83-130-1956)
	1 basalt (UA83-130-1958)
16	Bifaces
	9 argillite (UA83-130-128 and 129, 621, 1257, 1939 and 1950, 1942, 1943, 1945 and 1946, 1947, 1948)
	7 basalt (UA83-130-618, 1027, 1260, 1575, 1576, 1925, 1933)

TABLE 3.8 (Continued)

13	Biface fragments
	3 argillite (UA83-130-620, 1523, 1927)
	10 basalt (UA83-130-619, 669, 787, 1578, 1725, 1916, 1940, 2116, 2874, 3192)
2	Biface end fragments
	2 basalt (UA83-130-1936, 1954)
2	Core tools (basalt) (UA83-130-536, 1573)
10	Endscrapers
	1 argillite (UA83-130-2873)
	4 basalt (UA83-130-1263, 1380, 1922, 1941)
	4 chert (UA83-130-1124, 1421, 1921, 1938)
	1 rhyolite (UA83-130-1262)
1	Scraper (argillite) (UA83-130-1920)
28	Retouched flakes
	4 argillite (UA83-130-1259, 1924, 1929, 1944)
	21 basalt (UA83-130-125, 352, 540, 820, 1253, 1254, 1256, 1261, 1524, 1572, 1621, 1934, 1953, 1990a,b, 2872, 2875, 2876, 2877, 2878, 2879, 2880)
	2 chert (UA83-130-1258, 1577)
	1 obsidian (UA83-130-1955)
2	Modified cobbles (UA83-130-1464, 1926)
1	Pebble with battering (possible hammerstone) (UA83-130-1892)
1	Hammerstone (quartz) (UA83-130-969)
Lithic Material	
3,949	Argillite flakes
1	Argillite piece (angular shatter) (UA83-130-1912)
1	Argillite (?) cobble fragment (UA83-130-3365)

TABLE 3.8 (Continued)

52,673	Basalt flakes
3,153	Basalt flakes with cortex
12	Basalt pieces (angular shatter or exhausted flake core fragments)
18	Basalt pieces with cortex (angular shatter or flake core fragments)
6	Basalt cobbles
24	Basalt cobble fragments
1	Basalt core (?) (UA83-130-1919)
1	Basalt core fragment with cortex (UA83-130-2170)
263	Chalcedony flakes
	8 dark red
	28 pale brown
	91 brown
	18 dark brown
	1 brown banded
	15 light gray
	2 gray
	6 dark gray
	19 white to gray
	1 white to gray banded
	54 white to clear
	8 clear
	12 multicolored

TABLE 3.8 (Continued)

830	Chert flakes
	4 pale red
	2 weak red
	46 dusky red
	12 dark red
	5 reddish brown
	101 strong brown
	1 speckled brown
	89 brown
	82 dark brown
	1 grayish brown
	40 gray
	101 dark gray
	54 very dark gray
	8 gray banded
	1 gray and white
	101 black
	2 white and weak red
	5 white to gray
	172 white
	3 multicolored
2	Chert pieces (angular shatter)
	1 brown
	1 very dark gray
1	Chert flake (speckled brown, crazed) (UA83-130-1632)
11	Chert/chalcedony flakes (multicolored)
37	Obsidian flakes
	12 gray
	8 black
	9 clear to gray
	8 clear
1	Obsidian piece (angular shatter) (black) (UA83-130-2623)

TABLE 3.8 (Continued)

3	Quartz flakes
	1 white
	2 clear
48	Quartzite flakes
	46 gray
	2 white
372	Rhyolite flakes
1	Rhyolite cobble fragment (UA83-130-788)
24,553	Flakes less than 1/8" mesh:
	1,220 argillite
	23,067 basalt
	227 chert and chalcedony
	4 obsidian
	24 rhyolite
	11 unknown
1,413	Rock fragments (less than 5 cm - thermally altered?)
46	Thermally altered rocks (greater than 5 cm)
9	Rock fragments with charcoal stain
2	Cobbles (one with battering, UA83-130-3366)
1	Cracked cobble (UA83-130-2719)
2	Subangular cobbles
1	Subangular cobble (anvil?) (UA83-130-2073)
1	Ovate, bi-plano pebble (UA83-130-2889)
1	Subrounded cobble (UA83-130-3096)
1	Ochre-stained pebble (UA83-130-550)
16	Blocky pumice fragments
2	Shale fragments
43	Flakes of unknown material
2	Pieces of unidentified material (UA83-130-3085)

TABLE 3.8 (Continued)

Faunal <u>Material</u>	
ca. 9,500	Bone fragments
1	Bone fragments with cut marks (UA83-130-2678)
1,000+	Bone fragments/meal less than 1/8" mesh
3	Tooth fragments
<u>Other</u>	
1,928	Ochre pieces
37	Seeds
1	Beetle carapace (UA83-130-3271)
1	Equisetum sample (UA83-130-3423)

TABLE 3.9

ARTIFACT—SUMMARY BY STRATIGRAPHIC UNIT, TLM 030.

Unit	Description
1b Within finely sorted organic horizon	1 Basalt flake 2 Basalt flakes with cortex
1/2 Contact between organic horizon and Devil tephra (eluvial horizon)	Tools: 1 Endscraper (brown chert) (UA83-130-1124) 1 Retouched flake (basalt) UA83-130-820) 5 Argillite flakes 112 Basalt flakes 17 Basalt flakes with cortex 4 Chert flakes 1 speckled brown 1 gray 2 white 1 Flake less than 1/8" mesh (basalt)
1/3 Contact between organic horizon and Watana tephra (B horizon)	8 Basalt flakes 1 Basalt flake with cortex

TABLE 3.9 (Continued)

Unit	Description
2 Within Devil tephra (eluvial horizon)	Tools: 1 Projectile point tip (basalt) (UA83-130-1477) 1 Biface fragment (argillite) (UA83-130-1939) (articulates with UA83-130-1950) 39 Argillite flakes 400 Basalt flakes 42 Basalt flakes with cortex 2 Chalcedony flakes 1 brown 1 dark gray 6 Chert flakes 3 strong brown 3 dark gray 3 Obsidian flakes 2 gray 1 clear to gray 5 Rhyolite flakes 77 Flakes less than 1/8" mesh: 2 argillite 68 basalt 7 chert and chalcedony 14 Ochre pieces

TABLE 3.9 (Continued)

Unit	Description
2/3 Contact between Devil tephra (eluvial horizon) and Watana tephra (B horizon)	Tool: 1 Retouched flake (basalt) (UA83-130-1953) 9 Argillite flakes 141 Basalt flakes 21 Basalt flakes with cortex 2 Chalcedony flakes 1 dark brown 1 dark gray 5 Chert flakes 1 grayish brown 2 dark gray 1 very dark gray 1 black 2 Rhyolite flakes 1 Rock fragment (less than 5 cm - thermally altered?)
3 Within Watana tephra (B horizon)	1 Argillite flake 30 Basalt flakes 8 Basalt flakes with cortex 1 Chert flake (strong brown)

TABLE 3.9 (Continued)

Unit	Description
3a,b Within oxidized Watana tephra (illuvial horizon)	55 Argillite flakes 589 Basalt flakes 42 Basalt flakes with cortex 4 Chalcedony flakes 1 brown 1 gray 1 white to gray 1 multicolored 8 Chert flakes 1 dark red 2 strong brown 1 brown 1 dark gray 3 very dark gray 1 Obsidian flake (clear to gray) 1 Rhyolite flake 10 Rock fragments (less than 5 cm - thermally altered?) 3 Bone fragments 2 Ochre pieces

TABLE 3.9 (Continued)

Unit	Description
3b/c Within Watana tephra (contact between illuvial and lower zone of B horizon)	Tools: 1 Biface fragment (argillite) (UA83-130-1523) 1 Retouched flake (basalt) (UA83-130-1990) 30 Argillite flakes 258 Basalt flakes 16 Basalt flakes with cortex 1 Chalcedony flake (strong brown) 5 Chert flakes 3 dark brown 2 dark gray 1 Bone fragment 1 Ochre piece
3c Within Watana tephra (unoxidized, lower extent of tephra unit)	7 Basalt flakes
3/4b Contact between Watana tephra (B horizon) and Oshetna tephra	Tools: 4 Projectile points (basalt) (UA83-130-48, 349, 351, 1005) 1 Projectile point or point preform (basalt) (UA83-130-353) 1 Projectile point base (argillite) (UA83-130-1952) 1 Projectile point base (?) (basalt) (UA83-130-350) 1 Biface end fragment (basalt) (UA83-130-1954) 1 Endscraper (basalt) (UA83-130-1941)

TABLE 3.9 (Continued)

Unit	Description
3 b/c (continued)	
	1 Retouched flake (basalt) (UA83-130-2878)
	592 Argillite flakes
	7,285 Basalt flakes
	320 Basalt flakes with cortex
	1 Basalt piece with cortex (angular shatter or flake core fragment)
	1 Basalt core fragment with cortex (UA83-130-2170)
	49 Chalcedony flakes
	3 dark red
	2 pale brown
	16 brown
	1 brown banded
	1 gray
	17 white to clear
	4 clear
	5 multicolored

TABLE 3.9 (Continued)

Unit	Description
3 b/c (continued)	
	115 Chert flakes
	10 dusky red
	1 dark red
	1 reddish brown
	19 strong brown
	18 brown
	17 dark brown
	5 gray
	10 dark gray
	17 very dark gray
	1 gray banded
	11 black
	2 white to gray
	3 white
	11 Obsidian flakes
	6 gray
	2 black
	1 clear to gray
	2 clear
	55 Rhyolite flakes
	1,400 Flakes less than 1/8" mesh:
	63 argillite
	1298 basalt
	29 chert and chalcedony
	1 obsidian
	7 rhyolite
	2 unknown
	197 Rock fragments (less than 5 cm - thermally altered?)

TABLE 3.9 (Continued)

Unit	Description
3 b/c (continued)	
	1 Thermally altered rock (greater than 5 cm)
	9 Rock fragments with charcoal stain
	3 Blocky pumice fragments
	257 Bone fragments
	171 Ochre pieces
	1 Equisetum sample (UA83-130-3423)
4b Within Oshetna tephra	Tools:
	9 Projectile points
	5 argillite (UA83-130-127, 130, 1923, 1932, 1949 and 1951)
	4 basalt (UA83-130-867, 1915, 1931, 1935)
	1 Projectile point on a flake (basalt) (UA83-130-124)
	5 Projectile point bases
	1 argillite (UA83-130-126)
	3 basalt (UA83-130-441, 442, 1917)
	1 white chert (UA83-130-1937)
	1 Projectile point medial section (argillite) (UA83-130-1930)
	1 Projectile point tip (basalt) (UA83-130-880)
	1 Biface or point preform (basalt) (UA83-130-1958)

TABLE 3.9 (Continued)

Unit	Description
4 b (continued)	
	15 Bifaces
	8 argillite (UA83-130-128 and 129, 621, 1257, 1942, 1943, 1945 and 1946, 1947, 1948)
	7 basalt (UA83-130-618, 1027, 1260, 1575, 1576, 1925, 1933)
	10 Biface fragments
	3 argillite (UA83-130-620, 1027, 1950) (1950 articulates with 1939)
	7 basalt (UA83-130-619, 1578, 1916, 1940, 2216, 2874, 3192)
	1 Biface end fragment (basalt) (UA83-130-1936)
	1 Biface end fragment or core fragment (basalt) (UA83-130-1725)
	2 Core tools (basalt) (UA83-130-536, 1573)
	7 Endscrapers
	1 argillite (UA83-130-1873)
	3 basalt (UA83-130-1263, 1380, 1922)
	2 chert (UA83-130-1938, 1921)
	1 rhyolite (?) (UA83-130-1262)
	1 Scraper (argillite) (UA83-130-1920)
	20 Retouched flakes
	3 argillite (UA83-130-1259, 1929, 1944)

TABLE 3.9 (Continued)

Unit	Description
4 b (continued)	
	15 basalt (UA83-130-125, 1253, 1254, 1256, 1261, 1524, 1572, 1621, 1934, 2872, 2875, 2876, 2877, 2879, 2880)
	2 chert (UA83-130-1258, 1577)
	2 Modified cobbles (UA83-130-1464, 1926)
	1 Hammerstone (quartz) (UA83-130-969)
	2,329 Argillite flakes
	30,122 Basalt flakes
	1,779 Basalt flakes with cortex
	10 Basalt pieces (angular shatter or exhausted flake core fragments)
	14 Basalt pieces with cortex (angular shatter or flake core fragments)
	4 Basalt cobbles
	14 Cobble fragments
	1 Basalt core (?) (UA83-130-1919)

TABLE 3.9 (Continued)

Unit	Description
4 b (continued)	
	156 Chalcedony flakes
	3 dark red
	19 pale brown
	48 brown
	16 dark brown
	12 light gray
	4 dark gray
	12 white to gray
	32 white to clear
	4 clear
	6 multicolored
	595 Chert flakes
	4 pale red
	2 weak red
	27 dusky red
	9 dark red
	3 reddish brown
	64 strong brown
	66 brown
	54 dark brown
	13 gray
	68 dark gray
	28 very dark gray
	5 gray banded
	81 black
	3 white to gray
	165 white
	3 multicolored

TABLE 3.9 (Continued)

Unit	Description
4 b (continued)	
	2 Chert pieces (angular shatter) 1 brown 1 very dark gray
	1 Chert flake (speckled brown, crazed) (UA83-130-1632)
	6 Chert/chalcedony flakes (multi-colored)
	17 Obsidian flakes 3 gray 4 black 5 clear to gray 5 clear
	1 Obsidian piece (black) (angular shatter) (UA83-130-2623)
	3 Quartz flakes 1 white 2 clear
	14 Quartzite flakes 12 gray 2 white
	247 Rhyolite flakes
	4 Flakes of unknown material
	16,594 Flakes less than 1/8" mesh: 840 argillite 15,617 basalt 130 chert and chalcedony 3 obsidian 6 rhyolite

TABLE 3.9 (Continued)

Unit	Description
4 b (continued)	
	973 Rock fragments (less than 5 cm - thermally altered?)
	39 Thermally altered rocks (greater than 5 cm)
	1 Cobble
	2 Subangular cobbles
	1 Subangular cobble (anvil?) (UA83-130-2073)
	1 Ovate, bi-plano pebble (UA83-130-2889)
	1 Subrounded cobble (UA83-130-3096)
	4 Blocky pumice fragments
	2 Shale fragments
	2 Pieces of unidentified material (UA83-130-3085)
	6,989 Bone fragments
	1,000+ Bone fragments/meal less than 1/8" mesh
	3 Tooth fragments
	1,429 Ochre pieces
	37 Seeds
	1 Beetle carapace (UA83-130-3271)
4b/c Within Oshetna tephra (includes tephra and tephra with ochre)	3 Basalt flakes
	2 Basalt flakes with cortex

TABLE 3.9 (Continued)

Unit	Description
4b/d Contact between Oshetna tephra and dark silty matrix	52 Argillite flakes 272 Basalt flakes 21 Basalt flakes with cortex 7 Chalcedony flakes (brown) 2 Chert flakes 1 dark gray 1 white and weak red 2 Rhyolite flakes 39 Flakes of unknown material 194 Flakes less than 1/8" mesh: 25 argillite 152 basalt 8 chert and chalcedony 9 unknown 175 Bone fragments 18 Ochre pieces
4c Within Oshetna tephra (tephra with ochre)	16 Argillite flakes 105 Basalt flakes 15 Basalt flakes with cortex 1 Basalt piece with cortex (angular shatter or flake core fragment) 2 Chert flakes (gray) 1 Rhyolite flake 429 Flakes less than 1/8" mesh: 27 argillite 392 basalt 10 chert and chalcedony 8 Rock fragments (less than 5 cm - thermally altered?) 1,031 Bone fragments

TABLE 3.9 (Continued)

Unit	Description
4c (continued)	1 Bone fragment with cut marks (UA83-130-2678) 89 Ochre pieces
4d Dark silty matrix with artifacts	9 Argillite flakes 120 Basalt flakes 4 Basalt flakes with cortex 8 Bone fragments
4b/5 Contact between Oshetna tephra and very fine silt horizon	Tools: 2 Biface fragments (basalt) (UA83-130-669, 787) 1 Endscraper (chert) (UA83-130-1421) 3 Retouched flakes 1 argillite (UA83-130-1924) 2 basalt (UA83-130-352, 540) 617 Argillite flakes 11,361 Basalt flakes 765 Basalt flakes with cortex 1 Basalt piece (angular shatter or exhausted flake core fragment) 2 Basalt pieces with cortex (angular shatter or flake core fragments) 2 Basalt cobbles 9 Basalt cobble fragments

TABLE 3.9 (Continued)

Unit	Description
4b/5 (continued)	
	39 Chalcedony flakes
	2 dark red
	7 pale brown
	15 brown
	1 dark brown
	3 gray
	1 dark gray
	3 white to gray
	1 white to gray banded
	6 clear
	76 Chert flakes
	8 dusky red
	1 reddish brown
	11 strong brown
	5 brown
	12 dark brown
	19 gray
	6 dark gray
	3 very dark gray
	2 gray banded
	6 black
	2 white and weak red
	1 white
	5 Chert/chalcedony flakes (multi-colored)

TABLE 3.9 (Continued)

Unit	Description
4b/5 (continued)	
	4 Obsidian flakes 1 gray 1 black 1 clear to gray 1 clear 3 Quartzite flakes (gray) 30 Rhyolite flakes 1 Rhyolite cobble fragment (UA83-130-788) 5,303 Flakes less than 1/8" mesh: 224 argillite 5,037 basalt 42 chert and chalcedony 206 Rock fragments (less than 5 cm - thermally altered?) 7 Thermally altered rocks (greater than 5 cm) 9 Blocky pumice fragments 1 Ochre-stained pebble (UA83-130-550) 1 Cracked cobble (UA83-130-2719) 1,017 Bone fragments 194 Ochre pieces

TABLE 3.9 (Continued)

Unit	Description
4b/6 Contact between Oshetna tephra and glacial drift	Tool: 1 Pebble with battering (possible hammerstone) (UA83-130-1892) 143 Argillite flakes 1 Argillite piece (angular shatter) (UA83-130-1912) 1,083 Basalt flakes 63 Basalt flakes with cortex 1 Chalcedony flake (dark brown) 8 Chert flakes 1 dusky red 3 dark brown 1 dark gray 2 very dark gray 1 black 30 Quartzite flakes (gray) 23 Rhyolite flakes 514 Flakes less than 1/8" mesh: 37 argillite 465 basalt 6 chert and chalcedony 6 rhyolite 7 Rock fragments (less than 5 cm - thermally altered?) 42 Bone fragments

TABLE 3.9 (Continued)

Unit	Description
5 Within very fine silt horizon	18 Argillite flakes 291 Basalt flakes 10 Basalt flakes with cortex 2 Chert flakes 1 strong brown 1 black 39 Flakes less than 1/8" mesh: 2 argillite 37 basalt 11 Rock fragments (less than 5 cm - thermally altered?) 1 Bone fragment 2 Ochre pieces
6 Within glacial drift	1 Argillite flake 47 Basalt flakes 8 Basalt flakes with cortex 1 Quartzite flake (gray) 1 Rhyolite flake
Miscellaneous (no provenience, surface artifacts and re-excavated test pits)	Tools: 1 Biface or point preform (argillite) (UA83-130-1956) 1 Projectile point tip (rhyolite) (UA83-130-1957) 1 Retouched flake (obsidian) (UA83-130-1955) 33 Argillite flakes 1 Argillite (?) cobble fragment (UA83-130-3365) 438 Basalt flakes

TABLE 3.9 (Continued)

Unit	Description
Miscellaneous (continued)	
	17 Basalt flakes with cortex
	1 Basalt cobble fragment
	1 Chalcedony flake (white to gray)
	1 Chert flake (white)
	1 Obsidian flake (black)
	5 Rhyolite flakes
	1 Cobble with battering (UA83-130-3366)
	8 Ochre pieces

TABLE 3.10

SOIL/SEDIMENT DESCRIPTIONS FOR COMPOSITE SOIL PROFILE, TLM 030.

Unit	Description
1a	Surface organic layer: fibrous root mat with living and partially decayed plant material from sphagnum moss, dwarf birch, Labrador tea, lowbush cranberry, and other herbaceous woody shrub vegetation at the surface. Varies in thickness from 1-29 cm, but is usually 8-12 cm. The lower boundary is clear and smooth to wavy. Non-mineral O1 horizon. Continuous surface cover across the excavation area. Layer is thickest in areas of sphagnum moss ground cover. Contains decayed wood and roots up to 5 cm in diameter.
1b	Fine silty sand with finely divided organic material, macroplant fragments, and rootlets; black (5 YR 2.5/1). Varies in thickness from less than 1 cm to a maximum of 4 cm. Sharp and smooth to wavy lower contact. O2 horizon; peat layer with charcoal. In places unit 1b is undifferentiated from unit 1a, but the unit is generally continuous. Fibrous root material follows the contact between 1b and 2. Three basalt flakes were found within the unit, additional artifacts were recovered at the base of the unit along the contact with unit 2. A radiocarbon date of 170 ± 90 B.P. was obtained from the unit.
2	Very fine silt-sized particle; varies in color from very dark gray (10 YR 3/1) to brown (10 YR 4/3) to pinkish gray (5 YR 6/2). Variation in color may be due to downward leaching or organic material. Varies in thickness from 2-11 cm, but is usually 3-5 cm. Lower contact ranges from clear to indistinct and is very wavy and

TABLE 3.10 (Continued)

Unit	Description
	irregular. Tephra (Devil); eluvial A horizon. Unit is generally continuous and is present in all of the test squares. Unit is dense and compact. Artifacts are found at the contacts and within this unit.
3	Very fine silt-sized particles; reddish black (10 R 2.5/1) to yellowish brown (10 YR 5/6). Massive unit that includes three subunits (3a, 3b, 3c) and varies in thickness from 3-27 cm with considerable variation occurring in individual test squares. The lower contact is sharp and wavy. Tephra (Watana); B horizon. Forms a continuous unit in all of the test squares with the exception of N106/E102. Absence of unit 3 in the northern portion of that square suggests that post-depositional erosion was active at the site. The unit frequently appears very mottled with 3a occurring predominantly at the upper extent and 3c at the lower extent. Variation between subunits may represent a continuum based on organic and iron accumulation and is related to soil forming processes. Artifacts occur at the upper and lower contacts and within unit 3. Only 7 flakes are recorded from 3c.
3a	Very fine silt-sized particles with granular structure and some cemented concretions; reddish black (10 R 2.5/1) to dark reddish brown (5 YR 2.5/2). Very irregular and wavy boundaries. Tephra (Watana); illuvial B horizon. Organic and iron accumulation. Often described as being mixed with unit 3b and 3c. Bioturbation observed in the form of ant colonies measuring up to 25 cm in diameter.

TABLE 3.10 (Continued)

Unit	Description
3b	Very fine silt-sized particles with granular structure; dark reddish brown (5 Y 3/4 to 5 Y 3/3). Contacts vary from sharp to diffuse. Tephra (Watana); illuvial B horizon. The sediment has a coarse texture, but peds will break apart and dry into a fine powder. Often occurs as large irregular mottles. Predominant subunit of unit 3.
3c	Very fine silt-sized particles that lack granular structure; yellowish brown (10 YR 5/6). Very wavy and irregular contacts with subunits 3a and 3b, sharp undulating contact with charcoal lens and unit 4b. Tephra (Watana); B horizon. Generally occurs at the lower extent of unit 3. Dries to a very fine powder.
Charcoal Lens (Paleosol)	Small to medium-sized pieces of charcoal and carbonized plant material; black (10 YR 2/1). Occurs as a lens less than 1 cm in thickness. Paleosol. Lens is discontinuous but found in all of the test squares. Bifurcates in some places. Appears as isolated charcoal concentrations at the upper contact of units 4a and 4b. Radiocarbon dates cluster between 3160 B.P. to 3290 B.P. for an inclusive range of 130 years.
4a	Very fine silt-sized particles; light yellowish brown (10 YR 6/4). Unit is no more than 1 cm thick. Contacts are sharp and smooth. Occurs in isolated pockets directly beneath charcoal concentrations associated with the paleosol. Identified in six of the test squares. Greasy in texture when wet and dries to a fine powder. It is lighter in color although similar in texture to unit 4b beneath it. Unit does not contain artifacts.

TABLE 3.10 (Continued)

Unit	Description
4b	Very fine silt-sized particles; grayish brown (10 YR 5/2) to very dark gray (10 YR 3/1). Varies in thickness from 1-10 cm and is usually 3-5 cm. Extremes of thickness occur within individual test squares. The lower contact with unit 5 is clear and smooth. Tephra (Oshetna); buried eluvial horizon. Unit is present in all of the test squares, although, in some places it lacks continuity. In N104/E108 unit 4b is possibly truncated. Matrix is greasy in texture. Variation in color appears to be the result of downward staining or leaching of charcoal from the paleosol. Contains some rounded pebbles at the lower boundary. Unit is at times subnormal to the surface and does not vary with surface slope. Abundant artifacts are located along undulating upper contact, at the lower contact and throughout the unit.
	The following subunits of unit 4 are restricted spatially and are not included in the composite profile.
	4c Very fine silt-sized particles, greasy in texture when wet; in situ matrix is dusky red in color (10 R 3/4), but dries to a brown (10 YR 5/3). Varies from 1-8 cm in thickness. Contacts are diffuse. Tephra (Oshetna); buried eluvial horizon with red ochre staining. Isolated unit that was defined in three of the test squares (N105/E107, N104/E108 and N105/E109). Located at the same stratigraphic position as unit 4b and represents cultural modification of that matrix. Artifacts are found throughout unit.

TABLE 3.10 (Continued)

Unit	Description
4d	Fine silty matrix that is somewhat grainy in texture; when moist, matrix is reddish black in color (10 R 2.5/1), dries to a dark reddish brown (5 YR 2.5/2). Ranges from 1-8 cm in thickness. Upper contact is with unit 2 and lower contact is with unit 5, contacts vary from clear to diffuse. Isolated unit that was defined only in NW corner of N104/E108 and SE corner of N105/E107. Associated with small charcoal fragments, lithics and small bone fragments. Located at the same relative stratigraphic position as unit 3 and 4b.
4e	Fine silty matrix with granular structure; black (5 YR 2.5/1). Ranges from 1-3 cm in thickness. Contacts are clear. Upper contact is with unit 2 and lower contact is with unit 5. Tephra (Oshetna)? Located at the same relative stratigraphic position as unit 4b and is confined to a limited section of the north and east walls of N106/E102. Contains artifacts and small charcoal flecks.
4f	Fine silty matrix, greasy in texture; dark reddish brown (2.5 YR 2.5/4). Thickness of 1-3 cm. Upper contact is with units 4g and 4b, lower contact with 4b/5a. Isolated unit positioned stratigraphically within unit 4b that was defined only in N105/E109. Associated with artifactual material.

TABLE 3.10 (Continued)

Unit	Description
4g	Fine silt-sized particles. Dark yellowish brown (10 YR 4/4). Less than 1-2 cm in thickness. Upper contact is with unit 4b and lower contact is with unit 4f. Discontinuous lens positioned stratigraphically within unit 4b that occurs in an isolated area of N105/E109. Associated with artifactual material.
5	Very fine silt to clay-sized particles (plastic and sticky when wet) with small sand grains and occasional rounded pebbles; varies in color from grayish brown (10 YR 5/2 - unit 5a) to dark yellowish brown (10 YR 4/6 - unit 5b). Unit ranges in thickness from 1-16 cm although it is usually 4-6 cm. Contacts are clear and smooth, and are generally less irregular than the overlying units. Cobbles and rounded pebbles frequently protrude into this unit from the underlying unit (unit 6). Differentiation between units 5a and 5b is based on color only. Unit 5a occurs at the upper portion of unit 5. Artifacts recovered from this unit were probably derived from unit 4.
6a	Very coarse sand, gravels, pebbles and cobbles; dark reddish brown (5 YR 2.5/2). Upper extent of glacial drift deposit; weathered. Poorly or very poorly sorted. The majority of the cobbles are rounded. Frost-shattered cobbles are present. The cobbles are usually 5 to 10 cm in diameter, reaching a maximum of 18 cm. Moderately developed unit with concretions and cementation of sand particles. Artifacts recovered from this unit probably derived from unit 4.

TABLE 3.10 (Continued)

Unit	Description
6b	Very coarse sand, gravels, pebbles and cobbles; olive brown (2.5 Y 4/4). Glacial drift. Similar to unit 5a but lacks concretions and is loosely consolidated. Excavation into this unit determined limit of excavation.

TABLE 3.11

FAUNAL MATERIAL BY STRATIGRAPHIC UNIT, TLM 030.

Unit	Description
3a,b Within oxidized Watana tephra (illuvial horizon)	2 Possible rib fragments, calcined, medium-large mammal
3b/c Within Watana tephra (contact between illuvial and lower zone of B horizon)	1 Fragment, slightly burned, medium-large mammal
3c/4b Contact between Watana tephra (unoxidized, lower extent of tephra unit) and Oshetna tephra	1 Fragment, calcined, medium-large mammal
3/4b Contact between Watana tephra (B horizon) and Oshetna tephra	14 Fragments, calcined, medium-large mammal 208 Fragments, calcined to heavily burned medium-large mammal 1 Fragment, heavily burned, taxon unidentified

TABLE 3.11 (Continued)

Unit	Description
4b Within Oshetna tephra	1 Possible vertebral facet, calcined, Artiodactyl 2 Molar fragments, heavily burned, Artiodactyl 3 Possible rib fragments, calcined, medium-large mammal 24 Long bone fragments, calcined, medium-large mammal 1 Possible rib fragment, calcined, small-medium mammal 1 Fragment, calcined, small mammal 1 Fragment, calcined, bird 6,824 Fragments, calcined to heavily burned, medium-large mammal 1,000+ Bone meal fragments (ca. 1-5 mm), calcined to heavily burned, taxon unidentified
4b/d Contact between Oshetna tephra and dark silty matrix	1 Fragment, calcined, small-medium mammal 174 Fragments, calcined to heavily burned, medium-large mammal
4c Within Oshetna tephra (tephra with ochre)	3 Long bone fragments, calcined, medium-large mammal 1,029 Fragments, calcined to heavily burned, medium-large mammal

TABLE 3.11 (Continued)

Unit	Description
4d Dark silty matrix with	6 Fragments, calcined, medium-large mammals 2 Long bone fragments, calcined, medium-large mammal
4b/5 Contact between Oshetna tephra and very fine silt horizon	1 Phalanx fragment, calcined, probably caribou (<u>Rangifer tarandus</u>) 1 Molar fragment, burned, Artiodactyl 1 Fragment, calcined, small-medium mammal 64 Fragments, calcined, medium-large mammal 950 Fragments, calcined to heavily burned, medium-large mammals
4b/6 Contact between Oshetna tephra and glacial drift	39 Fragments, calcined to heavily burned, medium-large mammals
5 Within very fine silt horizon	1 Fragment, calcined, medium-large mammal

TABLE 3.12

CHARCOAL SAMPLES SUBMITTED FOR RADIOCARBON DATING, TLM 030.

Sample ID	Description	Stratigraphic Unit	^{14}C Years B.P.	Comments
UA83-130-1 (Beta-7300)	Small charcoal pieces	Charcoal lens (paleosol) between the Watana (unit 3) and Oshetna (unit 4b) tephras.	3290 ± 60 (1340 B.C.)	Upper limiting date for the lower component and Oshetna tephra. Dates surface associated with charcoal.
UA83-130-2 (Beta-7301)	Small charcoal pieces	Charcoal lens (paleosol) between the Watana (unit 3) and Oshetna (unit 4b) tephras.	2690 ± 70 (740 B.C.)	Upper limiting date for the lower component and Oshetna tephra. Dates surface associated with charcoal.
UA83-130-3 (Beta-7302)	Large piece of charcoal	The base of the charcoal piece was within the Oshetna tephra (unit 4b). Possibly associated with paleosol (unit 3/4).	5130 ± 140 (3180 B.C.)	Sample dates either the lower component or provides an upper limiting date for the lower component and Oshetna tephra.

TABLE 3.12 (Continued)

Sample ID	Description	Stratigraphic Unit	^{14}C Years B.P.	Comments
UA83-130-4 (Beta-7684)	Carbonized matrix, small charcoal pieces	Finely sorted organic (unit 1b) and Devil tephra (unit 2) contact.	170 ± 90 (A.D. 1780)	Upper limiting date for the upper component and Devil tephra. Possible contamination from leaching and organic material.
UA83-130-6 (Beta-7685)	Charcoal pieces	Charcoal lens (paleosol) between the Watana (unit 3) and Oshetna (unit 4b) tephras.	3180 ± 170 (1230 B.C.)	Upper limiting date for the lower component and Oshetna tephra. Dates surface associated with charcoal.
UA83-130-8 (Beta-7686)	Numerous small charcoal pieces	Charcoal lens (paleosol) between the Watana (unit 3) and Oshetna (unit 4b) tephras.	3290 ± 130 (1340 B.C.)	Upper limiting date for the lower component and Oshetna tephra. Dates surface associated with charcoal.

TABLE 3.12 (Continued)

Sample ID	Description	Stratigraphic Unit	^{14}C Years B.P.	Comments
UA83-130-14 (Beta-7687)	Charcoal pieces	Charcoal was situated on a thin lens of silty matrix (unit 4a), between the (unit 3) and Oshetna (unit 4b) tephras.	3160 ± 70 (1210 B.C.)	Upper limiting date for the lower component and Oshetna tephra. Dates surface associated with charcoal.
UA83-130-22 (Beta-7689)	Charcoal pieces	Charcoal was situated on a thin lens of silty matrix (unit 4a), between the Watana (unit 3) and Oshetna (unit 4b) tephras.	1730 ± 120 (A.D. 220)	Upper limiting date for the lower component and Oshetna tephra. Dates surface associated with charcoal.
UA83-130-26 (Beta-7690)	Charcoal pieces	Charcoal lens (paleosol) between the Watana (unit 3) and Oshetna (unit 4b) tephras.	3270 ± 90 (1320 B.C.)	The sample was collected from the wall of the test square for comparison to the floor sample (UA83-130-2).

TABLE 3.12 (Continued)

Sample ID	Description	Stratigraphic Unit	^{14}C Years B.P.	Comments
UA83-130-28 (Beta-7691)	Small charcoal pieces	Sample collected from carbonized matrix (unit 4e) possibly the Oshetna tephra (unit 4b).	1870 ± 120 (A.D. 80)	Unit 4e is positioned between the Devil tephra (unit 2) and the fine silt horizon (unit 5). A disconformity is represented by the absence of the Watana tephra suggesting possible contamination.

TABLE 3.13

ARTIFACT SUMMARY - RECONNAISSANCE TESTING (1983), TLM 030.

	Description
Test Pits	
Test Pit 1	32 Argillite flakes
Test Pit 2	295 Argillite flakes 14 Basalt flakes 8 Chalcedony flakes 1 pale brown 3 light gray 4 gray 38 Chert flakes 1 dusky red 18 gray 1 very dark gray 17 black 1 white 2 Quartzite flakes
Test Pit 3	5 Argillite flakes 9 Basalt flakes
Shovel Tests	
Shovel Test 4	3 Argillite flakes
Shovel Test 5	3 Argillite flakes

TABLE 3.13 (Continued)

—	Description
Shovel Test 6	2 Argillite flakes
Shovel Test 7	1 Basalt flake

TABLE 3.14

ARTIFACT_SUMMARY - GRID SHOVEL TESTING BY SHOVEL TEST, TLM 030.

Shovel Test	Description
N10/E60	1 Chert flake (dusky red)
N30/E90	1 Argillite flake 83 Basalt flakes 46 Basalt flakes with cortex 5 Bone fragments
N40/E80	1 Basalt flake with cortex
N60/E70	4 Basalt flakes
N80/E80	59 Basalt flakes 6 Chert flakes 1 dark red 3 gray 1 very dark gray 1 multicolored 1 Quartzite flake (brown)
N80/E100	1 Retouched basalt flake (possible biface end fragment) (UA83-130-2119) 5 Argillite flakes 11 Basalt flakes 9 Basalt flakes with cortex

TABLE 3.14 (Continued)

—	Description
N80/E120	1 Basalt flake
N80/E130	3 Basalt flakes
N90/E130	2 Argillite flakes 1 Basalt flake with cortex
N100/E130	1 Basalt flake

Systematic Testing TLM 069--Left Fork Site (1983)

Location: See Section 4 (Dixon et al. 1982a: 4-164)

Testing:

Additional testing was conducted at the Left Fork Site in 1983 because analysis of artifacts recovered there during the 1981 field season indicated that the site may represent a Choris/Norton Tradition occupation. Choris/Norton age sites are either rare in the project area or the current reconnaissance strategy has been unsuccessful in locating them. A further difficulty is that in situ cultural components dating to this interval in the project area have yielded few diagnostic artifacts. Given these conditions, reinvestigation of a suspected Choris/Norton site presented itself as the most effective means of investigating this period. Additional testing at the Left Fork site was also intended to clarify the site stratigraphy and the extent of disturbances due to cryoturbation and slope processes.

During the 1983 field season an additional three 1 m x 1 m test squares were excavated at the Left Fork site. Placement of the test squares was intended to: 1) maximize the recovery of diagnostic cultural material in clear stratigraphic context (N99/E109), and 2) to assess both down-slope reworking of sediment units with associated cultural material and 3) to further assess extent of the site (N99/E87 and N109/E120).

Discussion:

In 1981 three 1 m by 1 m test squares (N99/E101, N99/E112, and N100/E108) placed at the summit of the site knoll revealed subsurface cultural material consisting of both lithic artifacts and faunal remains (Dixon et al. 1982a:4-164 - 4-174). Only one of four 50 cm by 50 cm tests (test 4, at N94/E123) excavated to the east of the knoll summit produced cultural material. Both lithic and faunal material were found in dense concentrations during systematic testing. Lithic material recovered included nine tools or tool fragments and 1067 waste flakes

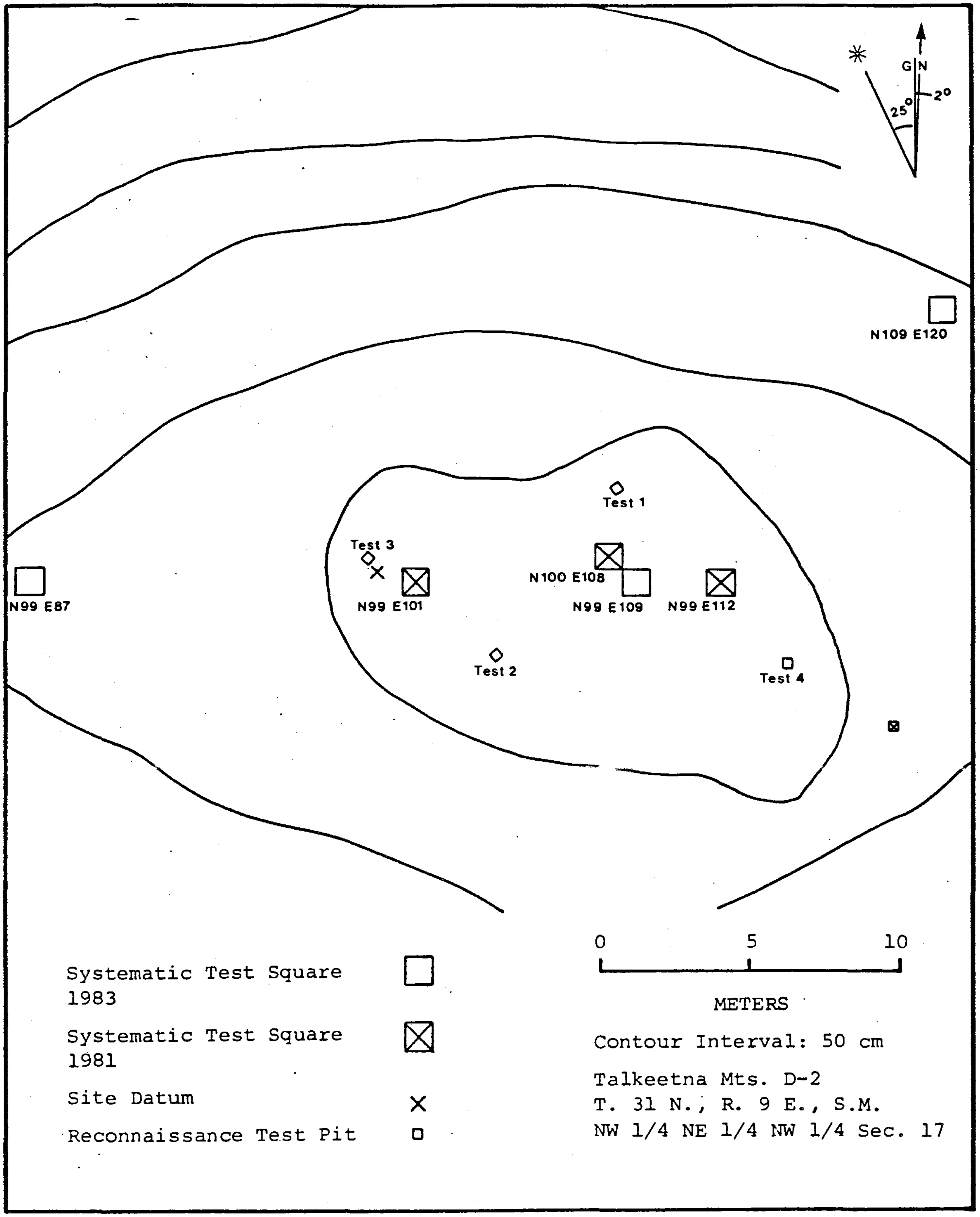


Figure 3.81. Site Map TLM 069 (1983).

(Dixon et al. 1982a:Table 54). Faunal remains were found in all subsurface tests which produced lithic material and consisted of over 900 burned bone fragments.

The majority of cultural material recovered in 1981 was associated with the lower Watana tephra (unit 4) contact with either the glacial drift (unit 6) or the Oshetna tephra (unit 5) where it was present. In 1981 it appeared that in all test squares except N100/E108 the Oshetna tephra had been eroded away leaving the cultural material behind as a lag deposit at the contact between the drift and the Watana tephra. The concentration of cultural material at the Oshetna/Watana contact in test square N100/E108 strongly indicated that this was the original context for the lithic and faunal material found at the unconformable Watana/Drift contact. All of the cultural material recovered in 1981 was tentatively regarded as being from a single component. Typological analysis of this material suggested, but did not confirm, that this was a Choris/Norton component.

Considerable mixing of stratigraphic units and cultural material was evident in the 1981 tests. Although both lithic and faunal material was recovered from within the Watana tephra in all three test squares and from the Devil tephra in N100/E108, in 1981 it appeared that only one component was present at Left Fork. This component was interpreted as being confined to the contact between the Watana and Oshetna tephras. Cultural material recovered from other units was interpreted as having been displaced by frozen ground processes.

The results of excavations during the 1983 season require modification of interpretations tentatively formulated in 1981 regarding the number and stratigraphic position of cultural components at the Left Fork site. Cultural material in primary context was discovered at the O2/Devil tephra (unit 2/unit 3) contact, indicating human occupation of the site sometime after ca. 1400 B.P. A small lens of artifacts and bone fragments, including a discoidal biface (UA83-131-42), was found at what appeared to be a contact between an undisturbed pod of Oshetna tephra (unit 5) and the oxidized surface of the glacial drift (unit 6). If this interpretation is correct, it may possibly indicate the presence of a third component at the site predating the Oshetna ash fall (ca. 5000 B.P.).

Excavation of two 1 m by 1 m tests on the slopes adjacent to the site knoll demonstrated that these areas did not serve as catchments for either redeposited Oshetna tephra or cultural material. This observation suggests that the Oshetna was removed from the site through deflation rather than colluviation.

Systematic testing in 1983 failed to locate typologically distinctive artifacts or identifiable faunal remains in the suspected Choris/Norton level. As a result, the 1983 excavations do not contribute directly to solution of either the cultural-historical or settlement-subsistence problems surrounding this interval. However, reinvestigation of the Left Fork site did provide contextual data critical to reinterpretation of the 1981 field results.

The soil/sediment stratigraphy at the Left Fork site can be categorized on the basis of topographic situation and depositional mechanisms (Figure 3.82). The soil/sediment units on the relatively flat top of the site knoll are primarily glacial and eolian in origin and are sharply defined stratigraphically except where modified by frozen ground processes and bioturbation. Eolian deposition above an unknown thickness of glacial drift consists of approximately 10 to 15 cm of silts and sandy silts identified as tephras on the basis of clast appearance. Color and stratigraphic position were used as field criteria for identifying these units within the regional tephra sequence. The lower-most silt (unit 5) occurs as discontinuous lenses in only two test squares (N100/E108 and N99/E109), and is identified as the Oshetna tephra. The Oshetna tephra may be mixed with other units.

Watana tephra (unit 4) overlies the Oshetna tephra, or where the Oshetna tephra is absent, glacial drift. The Watana tephra was subdivided in the field into an upper oxidized zone (unit 4a) and a lower unaltered zone (unit 4b). Watana tephra was present in all tests excavated on the knoll top in both 1981 and 1983.

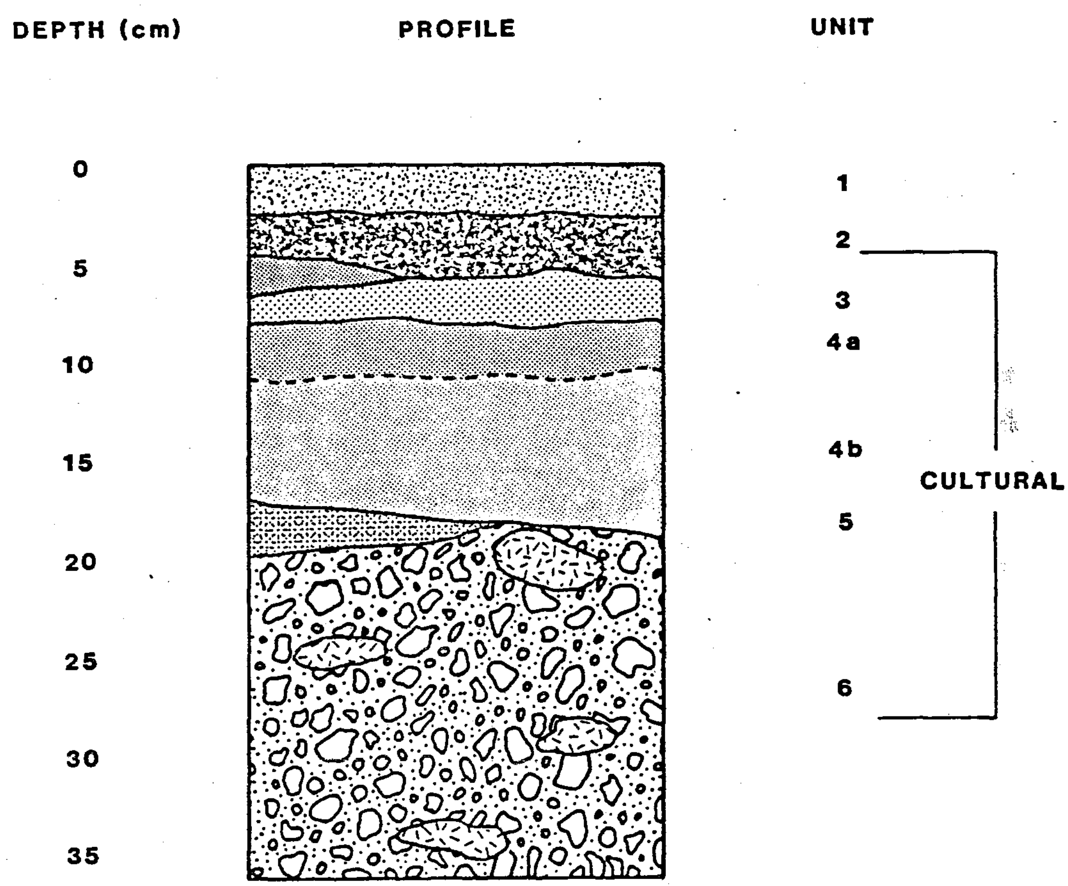


Figure 3.82. Composite Profile TLM 069 (1983).

TABLE 3.15

SOIL/SEDIMENT DESCRIPTIONS FOR COMPOSITE PROFILE, TLM 069 (1983).

Unit	Description
1	Surface organic accumulation: roots and plant material from dwarf birch, cranberry, crowberry, lichen, and moss. Varies in thickness from 2-15 cm, model thickness is 2-3 cm. Lower boundary is abrupt. An 01 horizon. Generally continuous. This unit is frequently truncated under tussocks by bioturbated sediments. Peat-like on wet slopes.
2	Silt with finely divided organics; black (7.5 YR 2/0). 1-6 cm in thickness. Gradational contacts with underlying units. An 02 horizon. A thin horizon conforming to the present surface. This unit is frequently truncated under tussocks by bioturbated sediments. Thicker and peat-like on slopes.
3	Silt; light brown to gray (10 YR 6/2), pink tinged in fresh exposures. 1-3 cm in thickness. Abrupt upper and lower contacts. Devil tephra. This unit is thin and discontinuous on the site kame, and occurs as pockets and stringers in colluvium on slopes. This unit is frequently truncated under tussocks by bioturbated sediments. Some staining by illuvial organics.
4a	Sandy silt; dark red orange to red brown (5 YR 3/3). 2-4 cm in thickness, with a gradational contact with the underlying unit. Altered Watana tephra. Absent on slopes, variably expressed on the kame top.

TABLE 3.15 (Continued)

Unit	Description
4b	Compact silty sand to silt; yellow brown (10 YR 6/4). 2-8 cm in thickness. Generally abrupt contact with underlying units, some mixing evident. Watana tephra. Generally a continuous unit, absent or mixed by colluviation on slopes. Some pebbles or cobbles in the lower one-third of the unit.
5	Silty sand; gray (5 Y 7/1). 1-3 cm in thickness, with abrupt upper and lower contacts where unmixed. Oshetna tephra. This unit is discontinuous, occurring as lenses and pockets. May be mixed with units 4b and 6 by cryoturbation processes. Absent on slopes.
6	Coarse silty sand with pebbles, cobbles and boulders; grading from reddish brown to olive at depth (2.5 YR 4/4 to 5 Y 5/3). Unit not totally exposed. Contact with overlying unit 4b is gradational to abrupt, with localized mixing. Glacial drift. Clasts are subrounded to angular. May be mixed with overlying units by colluviation on slopes.

Also present in all the knoll top tests was the Devil tephra (unit 3). The Devil tephra is the uppermost silt, which appears as a discontinuous light brown to gray, pink tinged unit.

Capping the silts are two soil units. The first consists of finely divided organic matter mixed with silt (unit 2, an O2 horizon). The second is the modern surface organic accumulation (unit 1, an O1 horizon). These are thin units with a combined average thickness of ca. 5 cm, and occurred in all the knoll top tests excavated in both 1981 and 1983. In test square N99/E109 a black silt lens with finely divided organic material and associated cultural debris separated the Devil tephra (unit 3) from the O2 horizon (unit 2). The cultural material in this lens included charcoal granules, lithic debitage and bone fragments (Tables 3.17, 3.18). This contact unit was not recognized during the 1981 excavations.

On the relatively steep (ca. 18-20 degree) slopes bordering the knoll top to the north and west, silt units reworked as colluvium overlie glacial drift in thicknesses ranging from approximately 5 to 10 cm. The gray silt identified as Oshetna tephra was absent from the knoll slope test squares (N99/E87 and N101/E120). The silts identified as the Watana and Devil tephras appeared as stringers in colluvium in both tests.

Overlying the tephra units were units 2 and 1, respectively; both horizons of variable thickness. The combined maximum thickness of these organic units on the knoll slopes exceeded that found on the knoll top, reaching 24 cm in N109/E102.

Three 1 m by 1 m test squares examined in 1983 produced a total of 195 lithic artifacts. Ten of these were tools (Table 3.16). The most distinctive of these tools was an argillite discoidal biface (UA83-131-42) (Figure 3.96e). Also found were seven blade-like flakes, a basalt modified flake and a gray chert flake core fragment. The remaining 185 lithic artifacts are waste flakes (Table 3.16). Among the waste flakes basalt (N=99), argillite (N=24), and rhyolite (N=21) are the numerically dominant material types only test square N99/E109, which falls within the previously defined site area, produced significant numbers of lithic artifacts. Test square N99/E87, down slope and to the west of the previously known site boundary, produced a single basalt flake. A test square placed on the northeast slope of the site knoll beyond the recognized site boundary (N99/E120) proved to be culturally sterile.

Subsurface testing in 1983 also produced 685 bone fragments. This faunal material was restricted to test square N99/E109. Tests N99/87 and N109/E120 were devoid of faunal remains.

Systematic testing in 1983 produced cultural material from all stratigraphic units from the 02/Devil contact through the glacial drift (units 2/3 contact through unit 6). Several factors complicate the organization of this material into cultural components. There are no sterile units separating components, and all stratigraphic units have been subjected to post-depositional disturbance. Bioturbation through root action under tussocks has created significant disturbance in units 2 through 4a. Frozen ground processes are evident in all stratigraphic units except the organic horizons (units 1 and 2). Erosion of the Oshetna tephra has obscured stratigraphic relationships in the lower half of the section. Together these processes have locally erased stratigraphy and displaced many artifacts and bone fragments.

Interpretation of the cultural horizons has been made possible only by discovery of what appear to be undisturbed zones within the site. Component 3 was isolated through the discovery of a dark organic lens at the contact between the 02 horizon (unit 2) and the Devil tephra (unit 3). Cultural material found in this lens included lithic debris, bone fragments, and charcoal (Table 3.18). The lens was restricted to the east one-half of test square N99/E109.

A second component (component 2) is inferred based on a review of field notes from 1981 and from a small concentration of waste flakes and bone fragments found sandwiched between the Watana (unit 4b) and the Oshetna (unit 5) tephras in 1981. Material in this stratigraphic position was found in all quadrants of N100/E108. In addition to waste flakes, N100/E108 produced a large (length = 122 mm) cordiform biface (UA81-215-290) and the base of a smaller biface (UA81-215-246) from this contact. In the more limited 1983 testing no cultural material from this level was isolated.

The lowermost component, component 1, was identified in 1983 when a discoidal biface (UA83-131-42) (Figure 3.96e) was discovered at the contact between a small pod of undisturbed Oshetna tephra (unit 5) and the oxidized surface of the glacial drift (unit 6). Accompanying the biface were a few small waste flakes and bone fragments. These were collected as part of a sediment sample, and do not appear in Table 3.18.

Most of the artifacts and bone fragments cannot be correlated to a cultural component.

The faunal assemblage at TLM 069 consists of 604 bone fragments stratigraphically situated from unit 2/3 through unit 6 (Table 3.17). Many of the bones had a brownish mottled appearance as the result of weathering. In general, the fragments were small, ranging in size from less than 5-34 mm, calcined, and attributable to medium-large mammals. Two vertebral elements and a probable phalanx fragment could be identified as Artiodactyl (caribou, moose, or sheep), and 2 vertebral and 1 metapodial fragment were recognized as belonging to caribou (Rangifer tarandus). In addition, 1 fragment was attributable to a small mammal or bird.

The bone density in N99/E109 appears to be greater than in any of the test squares excavated during the 1981 field season at TLM 069. Despite this fact, the small percentage of identifiable bone at the site, makes it difficult to assess the skeletal completeness of the animals being killed, and thus the proximity of the kill site. We do have some of the major skeletal components - long bones, axial skeleton (ribs and vertebrae) and extremities (phalanx and metapodial) represented at the site, particularly in the lower cultural component.

Evaluation:

In 1983 systematic testing at the Left Fork site had expansion of the cultural inventory as its primary goal; however only a small cultural sample was recovered. The chief value of the 1983 systematic testing lies in the contextual data it provided. New data on site stratigraphy and natural processes of site disturbance were collected. With these data, interpretation of the 1981 field results was improved.

By combining data from the 1981 and 1983 field seasons three cultural components were identified at the Left Fork Site. The uppermost component, component 3, consists of a restricted concentration of debitage, charcoal, and bone fragments in an organic stained matrix. No typologically diagnostic artifacts were recovered from this component. However, based on the stratigraphic position of component 3 above the Devil tephra (unit 3) it may be reasonable to assign it to either the Athapaskan or possibly extrapolate Choris/Norton traditions. This designation is consistent with the regional prehistory proposed by Dixon et al. (1982a:7-3 - 7-6).

The lower components at the Left Fork site, component 1 and component 2, are difficult to interpret due to natural site disturbance. A pentagonal projectile point found in the site suggests that at least one of these components is related to the Arctic Small Tool Tradition as defined by Dumond (1977). This point (UA81-215-49) was excavated from the Watana/Drift contact (unit 4b/6 contact) in 1981. Similar Arctic Small Tool specimens are illustrated by Giddings (1964:plate 47-5, plate 48-17), Larsen and Rainey (1948:plate 14-16, plate 46-10) and, Dumond (1981:plate VII-9,h).

Additional testing conducted in 1983 demonstrated that the site boundaries defined in 1981 are correct, with the major locus confined to the flat top of the site knoll. The extent of colluvial activity was made evident in excavating test squares on the flanks of the site knoll. Colluviation at the site has moved significant quantities of the Devil and Watana tephras (units 3 and 4) downslope, and has probably displaced a small amount of cultural material as well. A single waste flake was found in colluvium in test N99/E87.

Testing on the knoll slopes also indicates that the Oshetna tephra (unit 5) was stripped from the site by deflation. This interpretation reinforces the conclusion that cultural material from the Watana/Oshetna contact (unit 4/5 contact) was let down to the drift surface as a lag deposit.

Combined data from 1981 and 1983 suggest several inferences regarding site function and season of use at TLM 069. The Left Fork site probably functioned primarily as a big game hunting station, and secondarily as a temporary habitation site and manufacturing area. The site knoll is a dry area elevated over much of the surrounding wet terrain. The knoll provides an unobstructed view of the highlands to the north and east, and the bench land to the west. The Jay Creek mineral lick, which is heavily used by Dall sheep, is also visible 3.2 km to the northeast.

Modern big game use of the site area is heavy, and is concentrated in the early summer. Skoog (1968:451) reports that this highland area is important as escape terrain for elements of the Nelchina caribou herd at the peak of the fly season in June. Use of mineral licks in the Alaska Range by Dall sheep (Heimer 1973:38-39) and moose (Tankersley, 1981:22-26) also peaks in June. If game in the site area followed a similar pattern in the past, prehistoric occupations at TLM 069 may have been timed to coincide with early summer prey concentrations.

Recovery of a projectile point and bone from the site reinforces the interpretation that TLM 069 site functioned as a hunting station. The abundant debitage at the site indicates that manufacture or maintenance of stone tools was an important activity during all three occupations.

Examination of the tools found at the Left Fork site during 1981 and 1983 suggests that maintenance or construction of non-lithic manufactures occurred during at least one occupation. Omitting the projectile point, the major tool categories are scrapers (N=3), bifaces

(N=5), and utilized flakes (N=5) (Dixon et al. 1982a:Table 55, Table 3.19). Macroscopic wear patterns are visible on several of these tools. Four tools have areas of edge polish indicating use on some yielding material. Edge crushing is visible on four tools, pointing toward use on a resistant material. One tool, a large biface (UA81-215-290), shows both types of edge wear. An obsidian flake (UA81-215-4), which appears to be a dihedral burin, is unworn. These tools and their wear patterns suggest that wood or bone working, and hide processing may have been important activities at the Left Fork site.

TABLE 3.16

ARTIFACT SUMMARY, TLM 069 (1983).

Lithic Material	
24	Argillite flakes
99	Basalt flakes
1	Chalcedony flake
6	Banded chert flakes
7	Gray chert flakes
4	Red chert flakes
2	Gray speckled chert flakes
2	White chert flakes
1	Obsidian flake
4	Gray obsidian-like flakes
21	Rhyolite flakes
8	Quartzite flakes
6	Flakes, unknown material
1	Argillite discoidal biface (UA83-131-42)
2	Argillite blade-like flake (UA83-131-51, 56)
2	Basalt blade-like flakes (UA83-131-57, 12)
1	Banded chert blade-like flake (UA83-131-10)
2	Red chert blade-like flakes (UA83-131-50, 54)
1	Basalt modified flake (UA83-131-15)
1	Gray chert core fragment (UA83-131-14)
195 Total	
Faunal Material	
604	Small bone fragments

TABLE 3.17

FAUNAL MATERIAL, TLM 069 (1983).

Unit	Test Square	Description
2/3	N99/E109	1 Long bone fragment, calcined, medium-large mammal
		5 Fragments, calcined, medium-large mammal
2/3-4a		6 Fragments, calcined, medium-large mammal
3		2 Fragments, calcined, medium-large mammal
3/4a		1 Fragment, calcined, small mammal or bird
		8 Fragments, calcined, medium-large mammal
4a		1 Vertebral facet, calcined, medium-large mammal
		1 Possible rib, calcined medium-large mammal
		3 Long bone fragments, calcined, medium-large mammal
		106 Fragments, calcined, medium-large mammal
4b		1 Probable phalanx fragment, calcined, Artiodactyl
		4 Long bone fragments, calcined, medium-large mammal
		80 Fragments, calcined, medium-large mammal

TABLE 3.17 (Continued)

Unit	Test Square	Description
4b/6		1 Vertebral centrum fragment, calcined, medium-large mammal
		40 Fragments, calcined, medium-large mammal
5/6		1 Fragment, calcined, medium-large mammal
6		1 Facet of cervical vertebra, calcined, caribou (<u>Rangifer tarandus</u>)
		1 Facet of lumbar vertebra, calcined, caribou (<u>Rangifer tarandus</u>)
		1 Metapodial shaft fragment, calcined, probably caribou (<u>Rangifer tarandus</u>)
		2 Possible centra of cervical vertebrae, calcined, Artiodactyl
		1 Spinous process of thoracic vertebra, calcined, Artiodactyl
		2 Possible rib fragments, calcined, medium-large mammal
		12 Long bone fragments, calcined, medium-large mammal
		322 Fragments, calcined, medium-large mammal
	Total	604

TABLE 3.18

ARTIFACT SUMMARY BY TEST SQUARE AND STRATIGRAPHIC UNIT, TLM 069 (1983).

Unit	N99/E109	N99/E87
Surface	1 Basalt flake 1 Black chert flake	
2/3 Contact (02/Devil Tephra)	2 Argillite flakes 5 Basalt flakes 1 Obsidian flake 2 Rhyolite flakes	
3 (Devil Tephra)	1 Basalt blade-like flake (UA83-131-57 1 Argillite flake 2 Basalt flakes 1 Rhyolite flake	
4a (Oxidized Watana Tephra)	8 Argillite flakes 19 Basalt flakes 3 Gray chert flakes 1 Red chert flake 1 White chert flake	
4b (Watana Tephra)	1 Argillite flake 35 Basalt flakes 2 Banded chert flakes 2 Gray chert flakes 1 Red chert flake 1 White chert flake 1 Clear chalcedony flake 1 Gray obsidian-like flake	1 Basalt flake

TABLE 3.18 (Continued)

Unit	N99/E109	N99/E87
	3 Rhyolite flakes 2 Quartzite flakes 4 Flakes, material unknown 1 Banded chert blade-like flake (UA83-131-10) 1 Basalt blade-like flake (UA83-131-12)	
2/3 Contact through 4a (Bioturbated)	2 Argillite flakes 6 Basalt flakes	
2 through 4a (Bioturbated)	2 Argillite flakes 1 Basalt flake 1 Banded chert flake 2 Rhyolite flakes	
3 through 4a (Cryoturbated)	1 Basalt flake	
4b-6 Contact	1 Argillite blade-like flake (UA83-131-51)	
(Watana Tephra/ Glacial Drift)	1 Red chert blade-like flake (UA83-131-50) 7 Argillite flakes 1 Basalt flake	

TABLE 3.18 (Continued)

Unit	N99/E109	N99/E87
	1 Modified basalt flake (UA83-131-15) 1 Gray chert core fragment (UA83-131-14) 1 Gray chert flake 3 Banded chert flakes 1 Gray obsidian-like flake 4 Rhyolite flakes 1 Quartzite flake 1 Flake, material unknown	
5/6 Contact (Oshetna Tephra/ Glacial Drift)	1 Argillite discoidal biface (UA83-131-42)	
6 (Glacial Drift)	1 Argillite blade-like flake 1 Red chert blade-like flake 20 Argillite flakes 27 Basalt flakes 1 Gray chert flake 1 Lt. gray speckled chert flake 2 Red chert flakes 2 Obsidian-like flakes 2 Rhyolite flakes 5 Quartzite flakes 1 Flake, unknown material	
Unknown	1 Basalt flake	

TABLE 3.19

TOOLS BY STRATIGRAPHIC UNIT, TLM 069 (1983).

Unit	Test Square	Description
2/3 Contact between 02 horizon and Devil tephra	N99/E109	UA83-131-57. Basalt blade-like flake. Complete. Triangular cross-section, two arrises. Platform preparation by edge grinding. Distal end terminates in a feather fracture. Possible unifacial retouch on ventral surface of right lateral edge. 36.7 x 13.0 x 3.3 mm.
4b Watana tephra	N99/E109	UA83-131-10. Banded chert blade-like flake. Medial segment. Triangular cross-section. 15.8 x 6.9 x 1.6 mm.
		UA83-131-12. Basalt blade-like flake. Proximal segment. Triangular cross-section, one arris. Distal end terminates in a hinge fracture. Step fractures from platform collapse visible on the dorsal surface of the proximal end. 8.7 x 13.6 x 3.0 mm.
4b/6 Contact of Watana tephra with the glacial drift	N99/E109	UA83-131-14. Gray chert core fragment. Angular with primary percussion flaking. Triangular cross-section. Plano-convex longitudinal section. 43.5 x 6.2 x 18.7 mm.

TABLE 3.19 (Continued)

Unit	Test Square	Description
		UA83-131-15. Basalt modified flake. Bifacially flaked. Fine scalar retouch on lateral edges of dorsal face. Subrectangular in plan-view with excurvate edges. Plano-convex in cross-section. Lichen encrustation. 43.5 x 36.1 x 7.7 mm.
		UA83-131-50. Dark red chert blade-like flake. Proximal segment. Triangular cross-section, one arris. Pot-lid fracture on bulb of percussion. Lichen crust. 21.0 x 27.7 x 4.5 mm.
		UA83-131-51. Gray argillite blade-like flake. Proximal segment. Possible section of a bifacial edge preserved on the proximal end. Triangular in cross-section, one arris. 25.4 x 11.5 x 3.2 mm.
5/6 Contact of Oshetna tephra with glacial drift	N99/E109	UA83-131-42. Gray argillite discoidal biface. The piece is biconvex in transverse and longitudinal profile, subovate in plan view. Flaking is bifacial and bilateral. The flake scars are irregular and contracting, and many terminate in step fractures. The base is formed by unifacial thinning along a hinge fracture. The nose of the piece is straight subparallel to the base. It has been bifacially thinned by broad short flakes

TABLE 3.19 (Continued)

Unit	Test Square	Description
		terminating in step fractures. The lateral edges of the piece are excurvate and contract toward the base. This biface resembles artifacts illustrated by Larsen and Rainey (1948:plate 15), Giddings (1964:plate 56), and Clark (1977: plate 5-k-1-m, plate 6-h).
6 Glacial drift		UA83-131-54. Red chert blade-like flake. Triangular cross-section, one arris. Platform unmodified. Incipient pot-lid fracture on dorsal face. 19.1 x 19.4 x 3.3 mm.
		UA83-131-26. Basalt blade-like flake. Proximal segment. Two arrises. Edge grinding on the dorsal face of the platform. Distal fracture is a clean snap. 10.5 x 8.8 x 1.7 mm.

Systematic Testing TLM 097--Borrow C Site (1983)

Location: See Section 4 (Dixon et al. 1982a: 4-174)

Testing:

During the 1983 field season additional testing was performed at TLM 097. Three 1 m by 1 m test squares were positioned in a checkerboard fashion along the E104 grid line adjacent to test squares N104/E108 and N103/E105 excavated in 1981 (Dixon et al. 1982a:4-174 - 4-187) (Figure 3.83). As a result of this testing 194 lithic artifacts and 19 bone fragments were recovered (Tables 3.21, 3.22, 3.24). The goals of additional testing were to elucidate through continued testing the poorly represented recent component (component I) dated ca. 1400 B.P., and to resolve the existence of components II and III associated with the Devil/Watana tephra contact.

Discussion:

Systematic testing in 1981 indicated the presence of four components at TLM 097. The uppermost component (component I) was found in the 02, or humic, horizon, between the surface root mat and the Devil tephra. This component was characterized by abundant basalt flakes, thermally altered rock, charcoal, burned soil, and several hundred "calcined" bone fragments. Component II was found within the Devil tephra and in close proximity to its lower contact with the Watana tephra. A brown chert endscraper (UA81-252-360) and two brown chert flakes were found in addition to ca. 50 flakes of various other raw materials. It was argued that these artifacts represented a separate component because brown chert was not found in any other stratigraphic position. Component III was defined on the presence of artifacts in two of the test squares at the contact of the Devil tephra with the Watana tephra. It is represented by light green argillite (previously classified as "tuff"), thermally altered rock, charcoal, and burned soil. Many of the flakes and several of the thermally altered rocks were resting on top of the Watana tephra. Component IV was found at the contact between the Watana

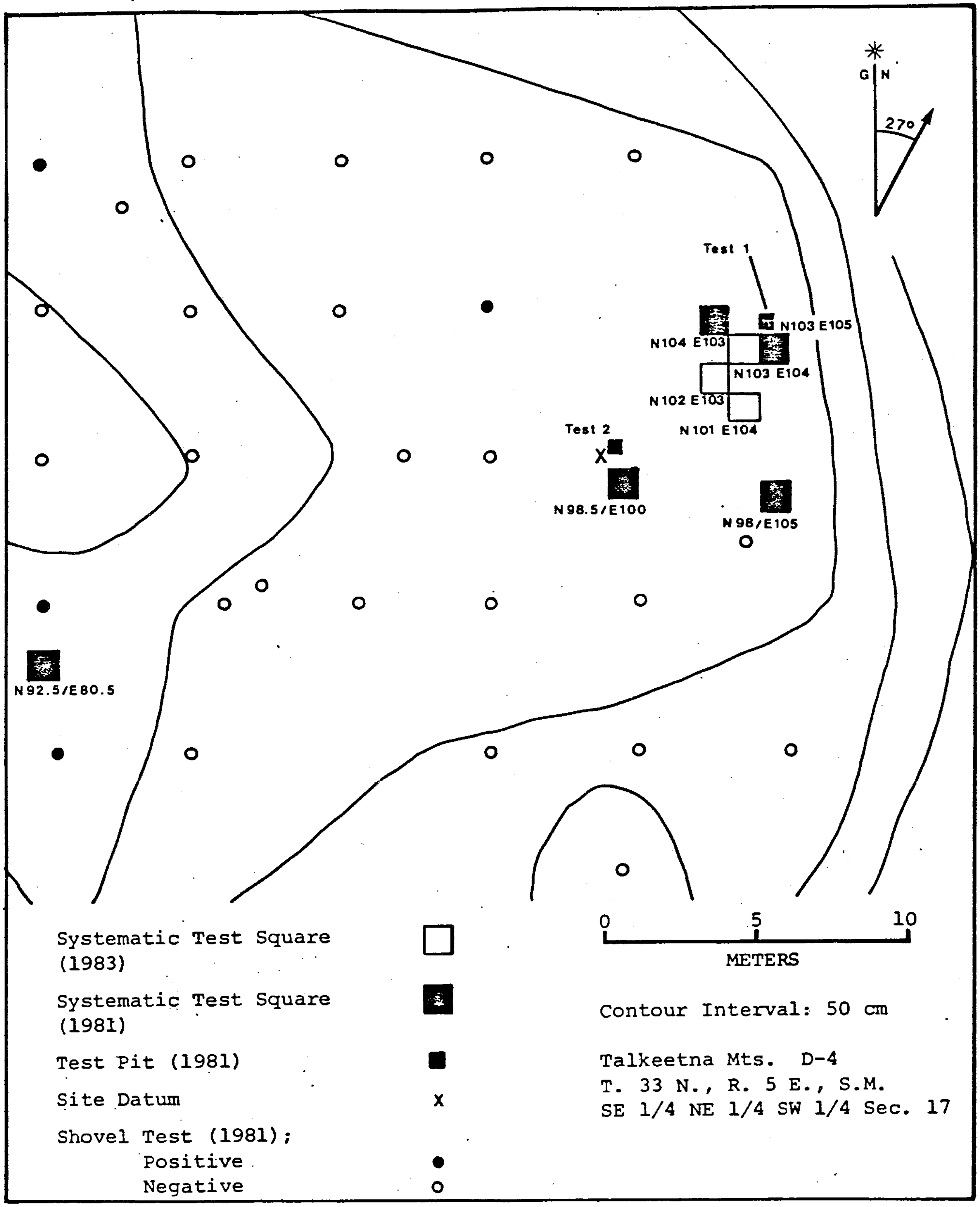


Figure 3.83. Site Map TLM 097 (1983).

and Oshetna tephra units and consisted of predominately basalt flakes and a dense concentration of charcoal.

The excavation of three additional test squares in 1983 did not fulfill the intended goals of expanding the cultural content of the recent component (component I) nor substantiate the existence and independence of components II and III. Component I was identified in two of the squares -- N102/E103 and N103/E104. It was found in the same stratigraphic context as the 1981 test squares -- within the 02, or humic, layer (unit 2) -- but lithics, particularly diagnostic lithic artifacts, were not recovered. The 1983 tests also confirmed the presence of component IV at the contact of the unoxidized Watana tephra (unit 5) and the Oshetna tephra (unit 6).

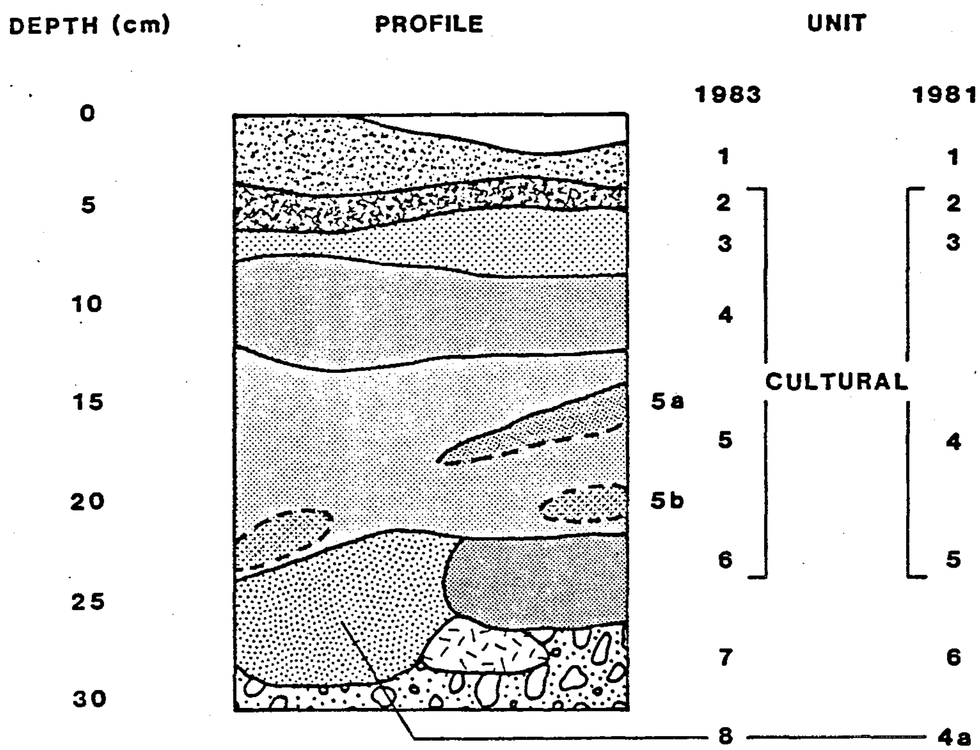
The excavation of additional test squares in 1983 failed to either confirm or deny the presence of either components II and III as defined in 1981. No lithic artifacts, bone, thermally altered rock, or charcoal could be unambiguously associated with the Devil tephra (unit 3), the stratigraphic location of component II. This component was believed to be present in all five test squares excavated in 1981. Similarly, no lithic, bone, thermally altered rock, or charcoal were noted at the Devil tephra (unit 3) and oxidized Watana tephra (unit 4) contact, the stratigraphic location of component III.

Stratigraphy at TLM 097 consisted of 22-36 cm of soil/sediments overlying glacial deposits. Eight units were defined. Four of the units (units 3-6) relate to soil/sediments containing distinct tephra components. The units and their tephra designations are: unit 3 for the Devil tephra, unit 4 for the oxidized component of the Watana tephra, unit 5 for the unoxidized component of the Watana tephra, and unit 6 for the Oshetna tephra. Although there are two sequences of deposition classified jointly under the term of Watana tephra, the distinctions between the two episodes cannot be made under field conditions. The distinction between the oxidized (unit 4) and unoxidized (unit 5) components of the Watana tephra is based upon soil characteristics and not upon the volcanic sediments.

Descriptions of the soil/sediments differ between the 1981 and 1983 field seasons. These differences are due in part to the wider testing area encompassed in the composite profile and soil descriptions of 1981 (Dixon et al. 1982a: Figure 144, Table 57). The composite profile included here has a comparison of the classifications for the two years (Figure 3.84). Units 1, 2, and 3 relate to the same soil/sediment levels for both field seasons. Unit 4 (Watana tephra) of the 1981 field season has been separated into two units. Unit 4 herein corresponds to the oxidized portion of the Watana tephra and unit 5, with its variants, relates to the unoxidized portion of the Watana tephra. Unit 4a of 1981 relating to the rodent burrows (krotovina) is designated unit 8 in the present descriptions to indicate the wider occurrence of these phenomena throughout the stratigraphy. The Oshetna tephra is designated unit 5 in 1981 and unit 6 in 1983. Glacial drift is unit 6 in 1981 and unit 7 in 1983. The coarse to medium sand underlying unit 6 of 1981 was not encountered in the 1983 test squares as they were excavated only 2 to 10 cm into the glacial drift.

Two cultural components were found during the 1983 systematic excavation. The first, component I, was present in two squares (N102/E103 and N103/E104) in unit 2, the 02 layer. Two features were present in component I. Feature 1 consists of a concentration of 19 bones and bone fragments belonging to caribou (Rangifer tarandus) and a single basalt flake found in N103/E104. This feature may be a continuation of faunal material found in N104/E105 in 1981. Feature 2, at the same level in the adjacent square (N102/E103), is composed of pieces of thermally altered rock, two questionable granitic cobble spall scrapers (UA83-224-60, UA83-224-61) and a bone fragment of caribou. Charcoal was abundant in both features. A radiocarbon date of 1400 ± 55 years: A.D. 550 (DIC-2245) was obtained for this component in 1981. A comparable date of 1260 ± 80 years: A.D. 690 (Beta-7845) was obtained from Feature 1.

The faunal material from TLM 097 found in 1983 consists of 20 unburned bones and bone fragments from Feature 1 in N103/E104 and a single fragment from N102/E103 (Figure 3.22). With the exception of 3 bones



<u>Unit 2</u>

UA83-224-129: 1260 ± 80 years: A.D. 690 (Beta-7845)

<u>Unit 6</u>

UA83-224-126: 4570 ± 100 years: 2620 B.C. (Beta-7844)

Figure 3.84. Composite Profile TLM 097 (1981 and 1983).

TABLE 3.20

SOIL/SEDIMENT DESCRIPTIONS FOR COMPOSITE PROFILE, TLM 097 (1983).

Unit	Description
1	Surface organic layer/vegetation mat consisting of sphagnum moss, dwarf birch roots, and peat. Varies from 3 cm to 15 cm in thickness. Lower contact is abrupt and regular to wavy. Non-mineral 01 horizon. No cultural material.
2	Fine silty sand or silt loam with some clay; very dark gray (10 YR 3/1). Generally very thin, between 0.5 cm and 6 cm thick. Possible 02, or humus, horizon. Unit is well sorted with abundant humus and charcoal. Glass shards observed under 10 power magnification. Artifacts consist of rare flakes, abundant charcoal, identifiable bone, and thermally altered rock.
3	Fine and to coarse silt; pinkish gray (7.5 YR 6/2). Ranges from 1 cm to 11 cm in thickness. Lower contact is abrupt but often wavy and irregular. Tephra (Devil). Continuous across test squares. Unit is well sorted and very friable. Contains many fine rootlets. Abundant glass shards; dries to a white powder. No cultural material.
4	Fine sand and silt; very dusky red (2.5 YR 2.5/2). Thickness varies from 2 cm to 12 cm, generally being 4 cm. Lower contact is diffuse and gradational. Tephra (oxidized Watana); possibly a B2hir horizon. Unit is of firm consistency with platy or granular structure. Moderately to well sorted, heavily oxidized. Glass

TABLE 3.20 (Continued)

Unit	Description
	shards observed. Rare basalt and chert flakes, possibly due to postdepositional movement from other strata.
5	Fine sand and silt, but with occasional granules; yellowish red (5 YR 4/6). Thickness varies from 0.1 cm to 10 cm and is often interrupted by numerous rodent and root disturbances. Lower boundary is often clear and non-wavy. Tephra (unoxidized Watana). Discontinuous. Unit is generally well sorted but may contain coarse sand or granule-size clasts. Very friable and dries rapidly to a fine powder. Glass shards observed. Rare basalt, argillite or gray chert flakes, possibly derived from other strata.
5a	Sandy silt with charcoal flecking and rootlets; dark brown (7.5 YR 3/4). Discontinuous stringers of 1 cm to 2 cm thickness in N101/E104 and N102/E103. Contacts are poorly defined. Possibly the result of oxidation staining or rodent activity. Glass shards observed. Rare basalt flakes, probably derived from other strata.
5b	Fine silt lenses; red (2.5 YR 4/8). Generally 1 cm thick, ranging up to 5 cm. Present at or near the base of unit 5 in N101/E104, and as diffuse staining in N103/E104. Glass shards observed. No cultural material.
6	Sandy silt containing occasional granules and pebbles; grayish brown (10 YR 5/2). Thickness of 2 cm to 10 cm, being generally 5 cm. Contact with unit 5 is usually abrupt and wavy; contact with unit 7 is abrupt to diffuse

TABLE 3.20 (Continued)

Unit	Description
	and regular to wavy. Often seems to be mixed with unit 7. Tephra (Oshetna) unit is discontinuous. Unit is friable; poorly or very poorly sorted. Glass shards observed. Charcoal, abundant basalt flakes, projectile point (UA83-224-71), and two endscrapers (UA83-224-11, UA83-224-73) found on or in this unit.
7	Gravelly sand and silts with numerous granules, pebbles, and cobbles; strong brown (7.5 YR 4/6). Contact with unit 6 is usually clear and regular, contact with unit 7a is gradational. Glacial drift. Unit is poorly sorted and friable. Excavation into unit marked limit of excavation. No cultural material.
7a	Same as unit 7, but often highly weathered and/or oxidized; very dusky red (2.5 YR 2.5/4). Gradational upper contact, base of unit unexposed. Present in N102/E103 and N102/E104. Weathered and/or oxidized glacial drift. No cultural material.
8	Sandy silt containing granules, pebbles, some charcoal flecking, and organic debris; strong brown (7.5 YR 4/6). Most contacts are sharp and clear. Occurs as isolated pockets, probably the result of rodent activity: krotovina. Rare cultural material present, probably derived from other strata.

identifiable only as belonging to a medium-large mammal, all of the bones are attributable to caribou (Rangifer tarandus) and in all likelihood belonged to a rather large adult. Included within the assemblage are bones from the forelimb, hindlimb, pelvis, and axial skeleton. Both the left and right sides of the body are represented. Except for the skull, portions of all major skeletal components are present suggesting that the animal was killed in close proximity to the site. Both butchering and gnawing marks are present.

Component IV, at the contact of the unoxidized Watana tephra (unit 5) and the Oshetna tephra (unit 6), was present in the three test squares. A total of 114 basalt flakes, 1 chalcedony flake, 1 gray chert flake, 2 chert endscrapers (UA83-224-11, UA83-224-73) (Figure 3.96, g, h), and a burinated argillite, concave-based, corner-notched projectile point (UA83-224-71) (Table 3.23, Figure 3.96, f) were found in situ on top of unit 6, the Oshetna tephra. A radiocarbon date of 4020 ± 65 years: 2070 B.C. (DIC-2283) was obtained for component IV in 1981 and one of 4570 ± 100 years: 2620 B.C. (Beta-7844) in 1983.

Evaluation:

Excavations at TLM 097 in 1983 did not meet the intended goals of expanding the cultural inventory of component I nor resolve the existence and independence of components II and III. Component I was present in two of the three test squares. Two features were found in component I, one of faunal material identified as belonging to caribou and the other of a concentration of thermally altered rock. The absence of components II and III in the 1983 tests restricts their evaluation.

Although no artifacts were found at the levels of components II and III, arguments can be made for and against the reality of the two components. In most cases, units 3 and 4, the Devil and oxidized Watana tephra levels, are heavily disturbed through cryoturbation and rodent activity making the assignment of artifacts to these units questionable. Additionally, the argument that component II can be distinguished from other components at TLM 097 rests in part on the recovery of brown chert artifacts only in this stratigraphic location in 1981. However, a brown chert flake was recovered from the top of unit 6 (Oshetna tephra) in N103/E104 suggesting that this material is not an acceptable "marker" of component II. The inability to find component II in any of the 1983 tests despite its presence in all 1981 tests must make its identification suspect. Evidence from N98/E105, excavated in 1981, suggests that component III does exist in some areas of TLM 097. The distinction between components II and III, which both occur at the contact of the Devil tephra (unit 4) with the Watana tephra (unit 5), cannot be resolved without further testing.

Contributions of the 1983 fieldwork at TLM 097 consist of the recovery of butchered faunal remains of caribou in component I and the addition to component IV of three tools (a burinated corner notched projectile point and two endscrapers). These data support the use of the site as a hunting overlook and/or a temporary campsite adjacent to a natural constriction of the Tsusena Creek valley during the Northern Archaic (ca. 1500 B.C. - ca. 3000 B.C.) and Athapaskan (ca. A.D. 500 - A.D. 1900) traditions.

TABLE 3.21

ARTIFACT SUMMARY, TLM 097 (1983).

Lithic Material	
145	Basalt flakes
35	Thermally altered rocks
4	Argillite flakes
3	Gray chert flakes
1	Chalcedony flake
1	Obsidian flake
2	Granitic spall scrapers (?) (UA83-224-60, UA83-224-61)
2	Gray chert endscrapers (UA83-224-11, UA83-224-73)
1	Green argillite, concave-based, corner-notched projectile point which has been subsequently burinated (UA83-224-71)
194 Total	

Faunal Material	
20	Bone and bone fragments

TABLE 3.22

FAUNAL MATERIAL, TLM 097 (1983).

Unit	Test Square	Description
Unit 2 Feature 1	N103/E104	1 Proximal phalanx (in 2 fragments), unburned, caribou (Rangifer tarandus)
		1 Distal fragment proximal phalanx, unburned, caribou (Rangifer tarandus)
		2 Proximal fragments middle phalanx, unburned, caribou (Rangifer tarandus)
		1 Distal phalanx fragment, unburned, caribou (Rangifer tarandus)
		1 Left cuneiform, unburned, caribou (Rangifer tarandus)
		1 Left unciform, unburned, caribou (Rangifer tarandus)
		1 Left magnum, unburned, caribou (Rangifer tarandus)
		1 Left proximal metapodial fragment (forelimb), unburned, caribou (Rangifer tarandus)
		1 Metapodial shaft fragment (forelimb), unburned, caribou (Rangifer tarandus)
		1 Left radius/ulna shaft fragment, unburned, caribou (Rangifer tarandus)
		1 Possible right radius shaft fragment, unburned, caribou (Rangifer tarandus)
		1 Right patella, unburned, caribou (Rangifer tarandus)
		1 Left innominate (ischium) fragment, unburned, caribou (Rangifer tarandus)

TABLE 3.22 (Continued)

Unit	Test Square	Description
		1 Rib fragment, unburned, probably caribou (<u>Rangifer</u> <u>tarandus</u>) 3 Long bone fragments, unburned, medium-large mammal
Unit 2 Feature 2	N102/E103	1 Left distal radius/ulna shaft fragment, caribou (<u>Rangifer</u> <u>tarandus</u>)

TABLE 3.23

TOOLS AND TOOL FRAGMENTS BY STRATIGRAPHIC UNIT, TLM 097 (1983).

Unit	Test Square	Description
6 Oshetna tephra	N103/E104	UA83-224-71. Green argillite corner notched projectile point. Concave base with basal thinning. Non-patterned flaking. Point tip has been removed with burin blow which has also removed one entire edge of the blade. Platform preparation for burin present (Figure 3.96f).
		UA83-224-73. Gray chert endscraper. On short side of a rectangular flake fragment. Steep unifacial retouch varies from 80 degrees to 60 degrees decreasing with thickness of face (Figure 3.96h).
	N102/E103	UA83-224-11. Gray chert endscraper. Made on small flake. One margin unifacially flaked. Edge is the result of the removal of three primary flakes with smaller secondary flakes. Edge angle is steep. Tool is plano-convex in cross-section Figure 3.96g).

TABLE 3.24

ARTIFACT SUMMARY BY TEST SQUARE AND STRATIGRAPHIC UNIT, TLM 097 (1983).

	Test Squares		
Unit	N101/E104	N102/E103	N103/E104
2		33 Thermally altered rock 2 Granitic spall scrapers (?) (UA83-224-60, UA83-224-61)	2 Thermally altered rock 1 Basalt flake
4	1 Gray chert flake 1 Basalt flake	5 Basalt flakes	2 Argillite flakes 2 Basalt flakes
4 & 5 (mixed)	4 Basalt flakes 1 Obsidian flake		
5	9 Basalt flakes 1 Gray chert flake	7 Basalt flakes	1 Argillite flake

TABLE 3.24 (Continued)

Unit	Test Squares N101/E104	N102/E103	N103/E104
6	11 Basalt flakes 1 Gray chert flake	100 Basalt flakes 1 Gray chert endscrpaer (UA83-224-11)	3 Basalt flakes 1 Chalcedony flake 1 Gray chert endscraper (UA83-224-73) 1 Green argillite, concaved-based, corner-notched projectile point subsequently burinated
4, 5, & 6 (mixed)	2 Basalt flakes		

Systematic Testing TLM 128--Jay Creek Ridge Site (1983)

Location: See Section 3.2

Testing:

Five 1 m x 1 m test squares were excavated at the site during systematic testing. All test squares were excavated adjacent to one another to form a continuous five meter profile along the North 89 grid line. They were placed in this location to obtain information on the effects of slope erosion to stratigraphy. Figure 3.85 illustrates the position of the five test squares in relation to its geographic contour. The five meter excavation essentially truncates the ridge crest and reveals the sequence of sediment build-up and subsequent deflation.

Discussion: The 1983 field season represented the second year of systematic excavation at TLM 128. During the 1982 field season, three test squares were excavated and over 4600 lithic specimens were recovered (see Dixon et al. 1982b). The initial excavation identified two prehistoric components. One of the two components represented an occupation below the Oshetna tephra, a rare situation for the Susitna Valley. Unfortunately, the 1982 excavation only obtained a very small amount of organic matter for radiocarbon dating for the pre-Oshetna occupation. The resulting date (4580 ± 780 years: 2630 B.C.) did not appear reliable given the stratigraphic context and the large error factor (780 C-14 years). The 1983 field season had an additional goal of obtaining more organic material for radiocarbon dating. Five systematic test squares were excavated in 1983 and produced 3123 flakes and 19 tools or tool fragments (Figure 3.85).

Four of the five test squares produced artifactual material during systematic testing. Most of the artifactual material was recovered from the center three squares. Test square N89/E99 contained the greatest number of artifacts (2110 lithic specimens). Test squares N89/E100 and N89/E101 also contained a high frequency of artifacts, 510 and 470 respectively. The total number and distribution of lithic tools is

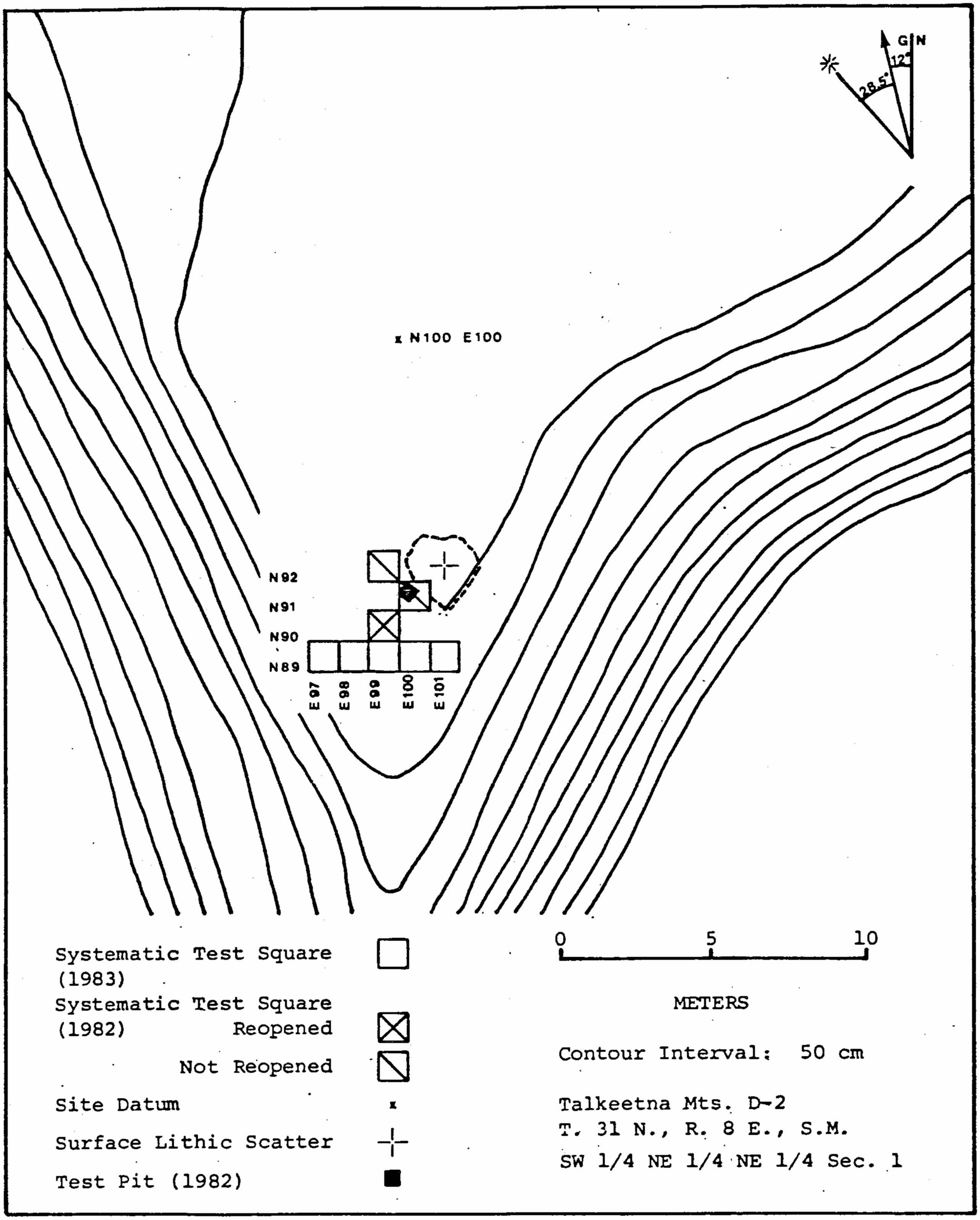
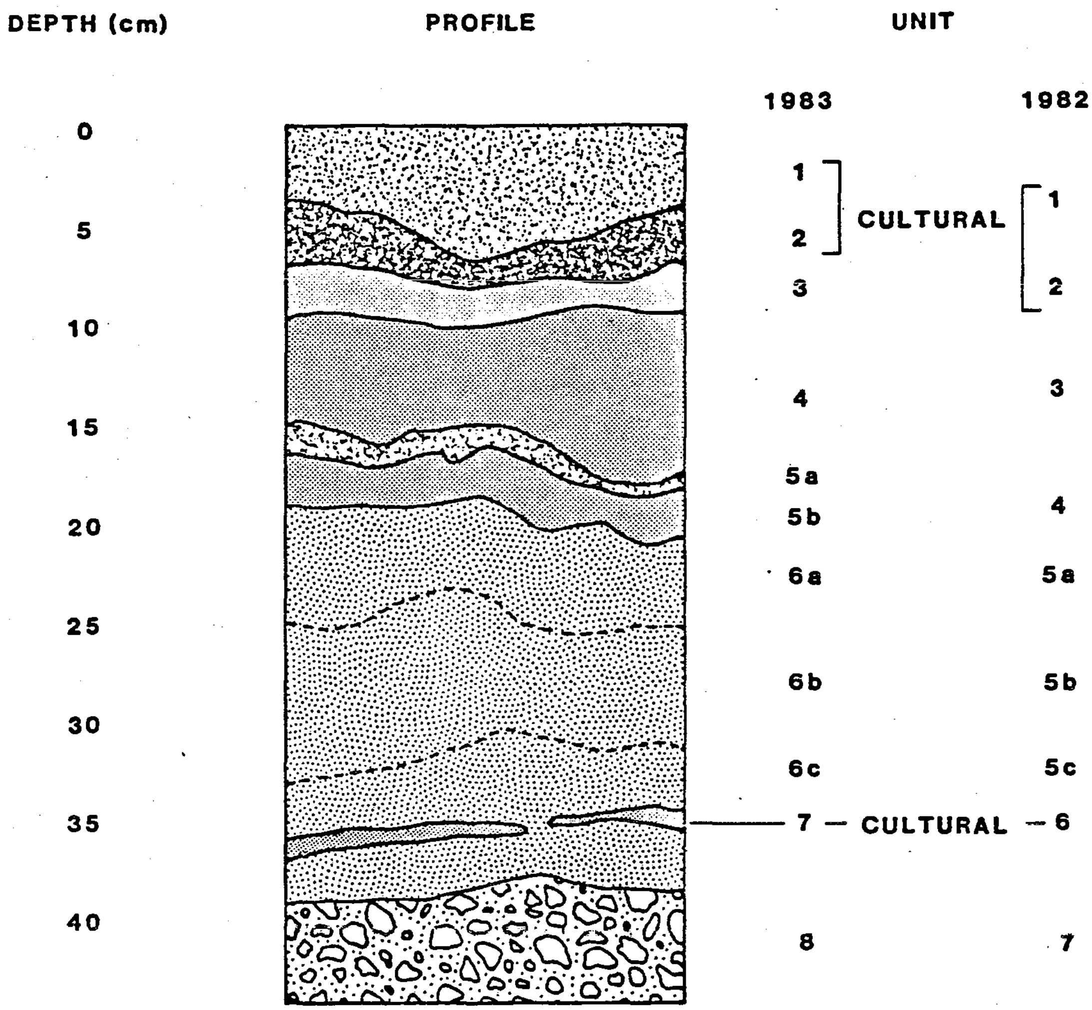


Figure 3.85. Site Map TLM 128 (1983).

listed in Table 3.29. The distribution of materials by stratigraphic unit is listed in Table 3.27 and the distribution of lithic material by stratigraphic unit and test square is listed in Table 3.28.

A total of seven classes of lithic raw materials were identified in the collected assemblage. One of these classes, chert, contained four variants. The lithic material types include basalt, argillite, chalcedoney, brown chert, black chert, gray chert and gray green chert. The gray green chert is grainy and resembles a fine grained quartzite or argillite with a high percentage of silica. But because of its conchoidal fracturing properties and the silica content it has been classed as a chert. It is also the most abundant kind of lithic raw material found at the site. This classification scheme is based on two principal attributes of rock which relate to their genesis, texture and composition. Texture refers to particle size, and composition refers to the minerals contained within the rock. The rock classification is general to reduce the amount of overlap between groups while at the same time providing the greatest amount of internal cohesion of classes. In situations where artifacts undergo great amounts of weathering the composition of the rock is easily masked. This can cause some identification problem with lithic types, especially for types in the same family (sedimentary, igneous, metamorphic). The lithic types used in this study provide a reliable indication of the amount of variability within the assemblage while at the same time establishing a base from which later kinds of analysis can be conducted.

Eleven soil/sediment units were identified at TLM 128. Figure 3.86 shows the vertical superposition of these units and Table 3.25 describes the various unit characteristics. Only one of the five test squares N89/E99 contained all eleven of the soil/sediment units. Three of the test squares had traces of ten units and one test square N89/E97 contained evidence for nine of the eleven soil/sediment units. The vertical placement of the soil/sediment units was fairly consistent throughout the site. But specific units were missing in some squares and in some squares erosion caused mixing of units.



Unit 7 (1983)

UA83-230-2,9,7-1,8-3,6,12:
6970 ± 210 years: 5020 B.C. (Beta-7304)

UA83-230-4:
7240 ± 110 years: 5290 B.C. (Beta-7306)

Unit 6 (1982)

UA82-68-320:
4580 ± 780 years: 2630 B.C. (Beta-5362)

Figure 3.86. Composite Profile TLM 128 (1983).

TABLE 3.25

SOIL/SEDIMENT DESCRIPTIONS FOR COMPOSITE PROFILE, TLM 128 (1983).

Unit	Description
1	Surface organic peat layer consisting of humus, roots, and plant debris mixed with fine silt and some aeolian sandy silt; dark brown (10 YR 3/3 moist; 10 YR 4/3 dry). Thickness varies from 0-12 cm with a modal value of 4 cm. Lower contact is generally distinct and regular to wavy. The unit is discontinuous as a result of two game trails and other surface disturbances. The unit is often mixed with unit 2 and in one case with both units 2 and 3. These mixed units are discontinuous and appear as pockets. Two of the five squares yielded three gray green chert flakes and a scraper fragment.
2	Fine silt with finely divided organics, fine charcoal pieces, carbon-staining, and some root debris; very dark gray to dark grayish brown (10 YR 3/1 moist; 10 YR 4/2 dry). Thickness is 0-6 cm with an average of 3 cm. Contacts are distinct to diffuse. 02 horizon. The unit is discontinuous and appears most often as a mixed unit with units 1, 3, or both 3 and 4. Disturbance is present and is due to the game trains, root turbation and surface erosion, especially past the break in slope. Cultural remains consisting of a biface tip (UA83-230-245), a possible graver (UA83-230-229) and flakes.

TABLE 3.25 (Continued)

Unit	Description
3	Very fine silt with small charcoal flecks and some roots; light pinkish gray to gray (5 YR 7/2 moist; 10 YR 4/2 dry). Thickness varies from 0-5 cm with a modal value of 3 cm. The contacts are distinct to diffuse. Devil tephra. Unit is intermittant and is found mostly in pockets or as a mixed unit with units 1 and 2, unit 2, or with 2 and 4. Unit powders readily. Disturbance present due to game trails, root turbation and surface erosion, especially past the breaks in slope. No cultural remains.
4	Very fine-grained silt with light oxidation and even coloration; strong brown to yellowish brown (7.5 YR 4/6 moist; 10 YR 5/8 dry). Thickness varies from 0-12 cm with a modal value of 4 cm. Contacts are gradual. Watana tephra. This unit is discontinuous and typically occurs as pockets. May be mixed with units 2 and/or 3. Some roots are present in this unit. Disturbances are present due to root turbation and surface erosion, especially over the breaks in slope. Cultural remains encountered in square N89/E98.
5a	Very fine silt with carbon-staining and decomposing organics; dark grayish brown to pale brown (10 YR 5/2 to 10 YR 4/2 moist; 10 YR 6/3 dry). Very thin, ranging from 1-2 cm. Lower contact is vague. Paleosol. Found in the west wall of N89/E99 as well as the north wall of N90/E99 (1982 excavation). No cultural remains encountered.

TABLE 3.25 (Continued)

Unit	Description
5b	Fine to medium silt, powdery with no carbon; light brownish gray to pinkish gray (2.5 YR 6/2 moist; 7.5 YR 7/2 dry). Thickness varies from 1-3 cm. Contacts are generally distinct. Oshetna tephra. This unit is discontinuous and typically occurs as stringers or small, isolated pockets. It also occurs as a mixed unit, with unit 4 and 5b. This unit appears in all but N89/E100. No cultural remains were encountered.
6a	Fine sandy silt matrix, oxidized in upper portions; dark yellowish brown to brownish yellow (10 YR 4/4 moist; 10 YR 6/6 dry). Thickness varies from 2-15 cm with a modal value of 4-6 cm. Lower contacts are gradual to indistinct. Oxidized aeolian deposit. This unit is fairly continuous throughout the site. Contains pockets of unit 5a in N89/E99. It is disturbed by a mixed unit (units 6c, 7 and 8) and roots, especially noticeable in the south wall of N89/E100. Cultural remains were rare.
6b	Fine sandy silt matrix, aeolian deposit; olive brown to very pale brown (2.5 YR 4/4 moist; 10 YR 7/4 dry). Thickness varies considerably from 0-18 cm with a modal value of 6-10 cm. Lower contacts are gradual. This unit is discontinuous and does not occur in the steepest portions of the slopes in N89/E97 and N89/E101. This unit is more consistent in color than units 6a or 6c. It is a mottled brown in some areas, which may indicate decomposed organics. Cultural material is rare, consisting of 3 chert flakes.

TABLE 3.25 (Continued)

Unit	Description
6c	Very fine sandy silt matrix with prominent reddish yellow (orange) oxidized mottling throughout; dark brown to light yellowish brown (10 YR 3/3 moist; 10 YR 6/4 dry). Thickness varies from 0-14 cm with a modal value of 6 cm. Contacts are generally distinct. Unit is fairly continuous across site even over the breaks in slope. Unit 6c contains the major occupation unit of the site, unit 7. All squares yielded cultural material.
7	Very fine silt, mottled in color which occurs within unit 6c; mottled dark to light brown (10 YR 3/4 to 3/36 moist; 10 YR 6/4 dry). Thickness is between 1-2 cm. Contacts are generally distinct. Paleosol. This unit appears as discontinuous units of decomposed organics and fine charcoal pieces (unit 7a) and as oxidized lenses (unit 7b) which are red to strong brown (2.5 YR 5/8 moist; 7.5 YR 5/8 dry). This unit is the major cultural unit of the site. Yielded several radiocarbon dates (Figure 3.86).
8	Fine to coarse subangular gravels, poorly sorted pebbles and rocks; olive brown to light yellowish brown (2.5 YR 4/4 moist; 2.5 YR 6/4 dry). Typically 10 cm into this unit is the limits of the excavation. Glacial drift. No cultural remains.

Three broad kinds of soil/sediment units were found at TLM 128. These include natural depositional units, the contacts between these units and cultural units. A general stratigraphic section consists of glacial drift at the bottom of the sequence overlain by a sequence of aeolian deposits. The lowest aeolian deposit, a loess, contains a cultural unit (lower paleosol) capped by a sequence of four tephras. The oldest tephra is the Oshetna, which is covered by the Upper and Lower Watana tephra. Above the Watana tephra lies the Devil tephra. Between the Oshetna and Watana tephras is a thin lens of charcoal and carbonized organics. This lens is discontinuous across the site but is identified as the Paleosol above Oshetna, found over the entire project area. Above the volcanic sediments is a lens of carbonated organics and charcoal. This lens is probably the O2 horizon of the contemporary root mat which caps the sequence. The root mat is sparse and contains plant debris and rootlets from Labrador tea, blueberry, and dwarf birch.

Seven of the eleven soil/sediment units have associated cultural material within or at their contact and two separate occupations have been defined. The first is associated with units 1 and 2. A total of 21 lithic artifacts and one bone fragment were recovered from this occupation. Units 3, 4, 5a, and 5b were sterile and separate the upper occupation from the lower occupation. Lithic specimens associated with the lower component are found in the aeolian deposits, the lower paleosol, and two flakes were found in the glacial drift.

Upper Component: The upper component is concentrated in the decayed organic horizon (unit 2). A basalt biface fragment (UA83-230-245) and 15 flakes were recovered from this unit. Additionally, five flakes were found on the surface of the site, two from N89/E98, one from N89/E101 and two from outside of the grid system. Also found outside of the grid system to the northeast was the fragment of a red chert scraper (UA83-230-18). Although few artifacts were recovered from the upper component, there is a variety of raw material. Six types of lithic raw material was recovered from the upper component including gray green chert, gray chert, basalt, chalcedony, brown chert and red chert. The artifactual material recovered from the upper component during the 1983 field season is not unlike the kind of material recovered from the same component the previous field season. No radiocarbon samples were found for this component.

Lower Component: The lower component is concentrated in the lower paleosol (unit 7) which is contained within the aeolian deposit. Artifacts associated with this component are also found within the aeolian sediments and in the contact zones associated with the lower paleosol. The soil/sediment units which contain artifacts and which are associated with this component include 6a, 6b, 6c, 7 and 8. Artifacts are also found in the contacts between the aeolian sediments and the lower paleosol 6b/7, 7/6c and the contacts between the lower paleosol, glacial drift and aeolian sediments 7/8, 6c/8, 6c/7/8. Two gray green chert flakes were also found within the glacial drift and are associated with the lower component. Test square N89/E98 produced 7 flakes that were associated with unit 4. Units 5a and 5b are not present in this square. There is strong evidence, particularly with regard to stratigraphy, that suggests these seven flakes are more accurately attributed to the aeolian/paleosol contact.

The lower component produced 99.3% of the lithic artifacts collected from the site. A total of 3121 lithic artifacts were found in this occupation. Table 3.27 provides a summary by stratigraphic unit. All seven of the raw material types found at the site were represented in the lower component assemblage. The majority of artifacts from this assemblage were composed of gray green chert. Gray green chert represents 84% of the lithic raw material.

Of the 3121 lithic artifacts found associated with this occupation, 17 were tools or tool fragments. Table 3.29 describes each of these tool types in morphological detail. One end scraper was found in the assemblage (UA83-230-41) (Figure 3.103g). It was made of vitreous fine grained brown chert. This same kind of chert was found in the previous summer's excavation and associated with the lower component. Two tools were made of argillite, a projectile point tip (UA83-230-128) (Figure 3.103k) and a blade fragment (UA83-230-155). Basalt was also used to make tools. A microblade fragment (UA83-230-33) (Figure 3.103b) and a biface (UA83-230-190) (Figure 3.103o) were manufactured from basalt. Also included within this component is a black chert projectile point (UA83-230-97) (Figure 3.103m). The remaining tools were made of gray green chert. These tools include modified flakes, microblade fragments and projectile point fragments.

There appears to be two different kinds of manufacturing technologies employed to make the projectile points. The first one is a more traditional technique to reduce bifaces down to projectile point size and shape. It employs percussion flaking to remove large flakes which are carried across the entire face of the point. The basalt biface (UA83-230-190) illustrates this type of flaking (Figure 3.103o). The second technique used is more striking and may represent a technology of biface production that has never been documented for interior Alaska. This bifacial production method uses very thin original flakes as the bifacial core. These flakes are then shaped by edge retouch along the margins of the original flake. This retouching is produced by hard hammer percussion, abrading and probably some pressure flaking. The retouch flakes are characteristically small and tend to step fracture. They do not carry well and in no circumstances do they meet in the center of the biface, except possibly at the projectile point tip, which is narrow. There are three projectile point tips found in the assemblage (UA83-230-42, 43, 128) which contain bifacial flaking that carries to the center of the tool but it is not clear if these projectile point tips are associated with the first type of technology or the edge retouch technology. The edge retouching technique leaves much of the original flake surfaces intact on the finished tool because the flakes are only removed along the edges. Consequently the original dorsal and ventral surfaces are identifiable (Figure 3.103i, j, k).

The modified flakes and unifacial tools recovered from the lower component look very similar to the finished projectile points manufactured with the edge retouch technique. The modified flakes are about the same size as the bifaces and are equal in thickness. The type of modification on the flakes is produced by hard hammer percussion and abrading.

This is the same technique used for making the bifaces. Flake scars are characteristically the same also, with many step fractures and flaking only along the edges. The two different bifacial production techniques may not be entirely disimilar. Most of the projectile point fragments which exhibit the edge retouch technique are made from gray green chert. The basalt biface exhibits flaking that carries across the surface of the tool. In addition, there is one black chert projectile point (UA83-230-97) which exemplifies both technologies, one for each face. The projectile points made using both of these technologies also produce very morphologically similar tools. The projectile points tend to be triangular in shape and are very thin.

An important discovery was the fitting of fragments recovered from the two different field seasons. An artifact identified as a modified flake from the 1982 field season (UA83-230-226) can be fitted to a bifacial fragment recovered from the 1983 field season (UA83-230-25). These two artifacts, when combined represent the remains of another projectile point manufactured with the edge retouching technique (Figure 3.103 1). The rearticulation of specimens from different seasons verifies the lower cultural component and strengthens chronological interpretations.

Evaluation: TLM 128 is located on a prominent ridge on the west side of Jay Creek approximately 3.9 km northeast of the Jay Creek and Susitna River confluence. The site area provides a panoramic view in all directions and is only obstructed by higher terrain to the northwest about 250 meters away. The view to the south affords observations down to the rim of the Jay Creek Valley in the vicinity of a mineral lick. The mineral lick is approximately 1.2 km to the southwest and is frequented by Dall sheep and caribou.

Systematic testing during the 1983 field season at TLM 128 has defined two prehistoric components. The first component occurs on the surface and into unit 2. No diagnostic artifacts were found which suggest the type of activity which had taken place at the site during its first occupation. The second component occurred below the deposition of the Oshetna tephra and is separated from the Oshetna tephra by approximately

40 cm of aeolian sediments. The prehistoric living surface occurs as a paleosol composed of carbonized organics, charcoal and artifacts. A radiocarbon sample taken during the 1982 field season provided a date of 4580 ± 780 years: 2630 B.C. (Beta - 5362). This date is questionable because of its stratigraphic position and the size of the sample taken. The Oshetna tephra which has been consistently dated at approximately 3200-4700 years ago overlies this paleosol by about 40 cm. The error factor of ± 780 years is large and is probably the result of a small or contaminated sample. Additional radiocarbon samples were procured during the 1983 field season and produced dates which conform with the regional stratigraphic position of the paleosol. These samples yielded dates of 6970 ± 210 years: 5020 B.C. (Beta - 7304) and 7240 ± 110 years: 5290 B.C. (Beta - 7306). Two additional radiocarbon samples were submitted. These samples contained a high percentage of soil matrix and little clean charcoal. Because of the small amount of charcoal, both were analyzed as bulk samples and produced dates of 5780 ± 100 years: 3830 B.C. (Beta-7847) and 1260 ± 80 years: A.D. 690 (Beta-7845) which do not represent the age of the paleosol.

In addition to the unique stratigraphic position of the lower component, the artifacts recovered from this component reveal a previously unreported and possibly diagnostic assemblage for this time period. The most distinctive characteristic of this assemblage is bifacial edge retouched concave based projectile points, exhibiting basal edge grinding, which have been manufactured on thin flakes. Some of the "modified flakes" recovered from the 1982 season articulate with projectile point fragments recovered from the 1983 field season. Additional artifacts associated with this assemblage include modified bifacial thinning flakes and a microblade industry.

The site appears to have had an extensive early occupation where primary tool manufacturing occurred. Large bifacial reduction flakes were either produced on the site or transported into the site and then reduced to projectile points. The later component contains evidence of a minor occupation, with no indication of the type of activity which may have taken place. This site is important because of its stratigraphic position below the Oshetna tephra, its potential for defining the early chronology in the Susitna River Valley, and for definition of a new diagnostic artifact assemblage for the interior of Alaska.

TABLE 3.26

ARTIFACT SUMMARY, TLM 128 (1983).

Lithic Material	
2625	Gray green chert flakes
23	Brown chert flakes
2	Black chert flakes
4	Gray chert flakes
31	Chalcedony flakes
12	Argillite flakes
426	Basalt flakes
4	Microblade fragments, gray green chert (UA83-230-23, 31, 44, 86)
1	Microblade, basalt (UA83-230-33)
1	Blade fragment, brown argillite (UA83-230-155)
1	Unifacial tool, gray green chert (UA83-230-104)
5	Projectile point fragments, gray green chert (UA83-230-24, 25, 36, 42, 43)
1	Projectile point, black chert (UA83-230-97)
1	Projectile point tip, argillite (UA83-230-128)
1	Projectile point fragment, basalt (UA83-230-190)
1	Biface fragment, basalt (UA83-230-245)
1	End scraper, brown chert (UA83-230-41)
1	Modified flake, gray green chert (UA83-230-236)
1	Scraper fragment, red chert (UA83-230-18)

TABLE 3.27

ARTIFACT SUMMARY BY STRATIGRAPHIC UNIT, TLM 128 (1983).

Unit	Description
Surface	4 Gray green chert flakes 1 Gray chert flake 1 Scraper fragment, red chert (UA83-230-18)
Unit 2: Within decayed organic horizon	4 Gray green chert flakes 3 Basalt flakes 1 Chalcedony flake 4 Brown chert flakes 2 Gray chert flakes 1 Biface fragment, basalt (UA83-230-245)
Unit 6a: Within oxidized aeolian deposit	3 Gray green chert flake
Unit 6b: Within olive brown aeolian deposit	1 Gray green chert flake 1 Black chert flake
Unit 6b/7: Contact between and lower paleosol	148 Gray green chert flakes 4 Brown chert flakes 11 Argillite flakes

TABLE 3.27 (Continued)

Unit	Description
Unit 7: Lower paleosol	2118 Gray green chert flakes 8 Brown chert flakes 1 Gray chert flake 29 Chalcedony flakes 1 Argillite flake 380 Basalt flakes 1 Unifacial tool, gray green chert (UA83-230-104) 1 Blade fragment, argillite (UA83-230-155) 3 Microblade fragments, gray green chert (UA83-230-23, 31, 44) 1 Microblade, basalt (UA83-230-33) 1 End scraper fragment, brown chert (UA83-230-41) 1 Modified flake, gray green chert (UA83-230-236) 5 Projectile point fragments, gray green chert (UA83-230-24, 25, 36, 42, 43)
Unit 7/6c: Contact between lower paleosol and reddish yellow aeolian deposit	37 Gray green chert flakes 4 Brown chert flakes 7 Basalt flakes 1 Black chert flake 1 Projectile point, black chert (UA83-230-97) 1 Projectile point, basalt (UA83-230-190)

TABLE 3.27 (Continued)

Unit	Description
Unit 7/8: Contact between lower paleosol and glacial drift	9 Gray green chert flakes
Unit 6c: Within reddish yellow aeolian deposit	86 Gray green chert flakes 1 Brown chert flake 12 Basalt flakes
Unit 6c/8: Contact between reddish yellow aeolian deposit and glacial drift	1 Gray green chert flake
Unit 6c/7/8: Contact between aeolian deposit, lower paleosol and glacial drift	212 Gray green chert flakes 2 Brown chert flakes 1 Chalcedony flake 24 Basalt flakes 1 Projectile point tip, argillite (UA83-230-128) 1 Microblade fragment, gray green chert (UA83-230-86)
Unit 8: Within glacial drift	2 Gray green chert flakes

TABLE 3.28

ARTIFACT SUMMARY BY TEST SQUARE AND STRATIGRAPHIC UNIT, TLM 128 (1983).

Unit	Test Square	Description
1	N89/E97	None
2	N89/E97	1 Basalt Flake 1 Biface tip, basalt (UA83-230-245)
4	N89/E97	None
6a	N89/E97	1 Gray green chert flake
6b	N89/E97	1 Gray green chert flake
6b/7	N89/E97	None
7	N89/E97	None
7/6c	N89/E97	2 Gray green chert flakes
7/8	N89/E97	None
6c	N89/E97	3 Gray green chert flakes
6c/8	N89/E97	1 Gray green chert flake
8	N89/E97	None
6c/7/8	N89/E97	None

TABLE 3.28 (Continued)

Unit	Test Square	Description
Surface	N89/E98	1 Gray green chert flake
2	N89/E98	4 Gray green chert flakes 2 Basalt flakes 1 Chalcedony 4 Brown chert flakes 2 Gray chert flakes
4	N89/E98	None
6a	N89/E98	2 Gray green chert flakes
6b	N89/E98	None
7	N89/E98	4 Gray green chert flakes 1 Gray green chert modified flake (UA83-230-236)
7/6c	N89/E98	12 Gray green chert flakes 3 Brown chert flakes 1 Black chert flake
7/8	N89/E98	None
6c	N89/E98	None
6c/8	N89/E98	None

TABLE 3.28 (Continued)

Unit	Test Square	Description
8	N89/E98	None
6c/7/8	N89/E98	1 Gray green chert flake
Surface	N89/E99	None
2	N89/E99	None
4	N89/E99	None
6a	N89/E99	None
6b	N89/E99	1 Black chert flake
6b/7	N89/E99	None
7	N89/E99	1880 Gray green chert flakes 186 Basalt flakes 28 Chalcedony 1 Brown chert flake 1 Gray chert flake 1 Gray green chert microblade (UA83-230-31) 1 Basalt microblade (UA83-230-33) 1 Gray green chert microblade (UA83-230-44) 1 Gray green chert projectile point fragment (UA83-230-42)

TABLE 3.28 (Continued)

Unit	Test Square	Description
		1 Gray green chert projectile point fragment (UA83-230-43)
		1 Gray green chert projectile point fragment (UA83-230-24)
		1 Brown chert end scraper (UA83-230-41)
		1 Gray green chert projectile tip (UA83-230-25)
		1 Gray green chert projectile tip (UA83-230-36)
		1 Gray green chert microblade fragment (UA83-230-23)
7/6c	N89/E99	None
7/8	N89/E99	None
6c	N89/E99	3 Basalt flakes
6c/8	N89/E99	None
8	N89/E99	None
6c/7/8	N89/E99	None
Surface	N89/E100	None

TABLE 3.28 (Continued)

Unit	Test Square	Description
2	N89/E100	None
4	N89/E100	None
6a	N89/E100	None
6b	N89/E100	None
6b/7	N89/E100	148 Gray green chert flakes 11 Argillite flakes 4 Brown chert flakes
7	N89/E100	49 Gray green chert flakes 186 Basalt flakes 1 Chalcedony 5 Brown chert flakes 1 Gray green chert unifacial tool (UA83-230-104) 1 Blade fragment, argillite (UA83-230-155)
7/6c	N89/E100	9 Gray green chert flakes
7/8	N89/E100	8 Gray green chert flakes
6c	N89/E100	4 Gray green chert flakes 3 Basalt flakes 1 Brown chert flake

TABLE 3.28 (Continued)

Unit	Test Square	Description
6c/8	N89/E100	None
8	N89/E100	1 Gray green chert flake
6c/7/8	N89/E100	75 Gray green chert flakes 1 Chalcedony 1 Gray green chert microblade fragment (UA83-230-86) 1 Argillite projectile point (UA83-230-128)
Surface	N89/E101	1 Gray green chert flake
2	N89/E101	None
4	N89/E101	None
6a	N89/E101	None
6b	N89/E101	None
6b/7	N89/E101	None
7	N89/E101	185 Gray green chert flakes 8 Basalt flakes 1 Argillite 2 Brown chert flakes

TABLE 3.28 (Continued)

Unit	Test Square	Description
7/6c	N89/E101	14 Gray green chert flakes 7 Basalt flakes 1 Brown chert flake 1 Projectile point, blade chert (UA83-230-97) 1 Projectile point, basalt (UA83-230-190)
7/8	N89/E101	1 Gray green chert flake
6c	N89/E101	79 Gray green chert flakes 6 Basalt flakes
6c/8	N89/E101	None
8	N89/E101	1 Gray green chert flake
6c/7/8	N89/E101	136 Gray green chert flakes 24 Basalt flakes
Surface	N89/E102	None
2	N89/E102	None
4	N89/E102	None
6a	N89/E102	None

TABLE 3.28 (Continued)

Unit	Test Square	Description
6b	N89/E102	None
6b/7	N89/E102	None
7	N89/E102	None
7/6c	N89/E102	None
7/8	N89/E102	None
6c	N89/E102	None
6c/8	N89/E102	None
8	N89/E102	None
6c/7/8	N89/E102	None

TABLE 3.29

TOOLS AND TOOL FRAGMENTS BY STRATIGRAPHIC UNIT, TLM 128 (1983).

Unit	Test Square	Description
2 With decayed organic horizon	N89/E97	UA83-230-245. Biface fragment, basalt: Only the tip of a biface or possibly a projectile point remains. Primary flaking is evident on one side of the tool and secondary retouch appears on the opposite face.
7 Within lower paleosol	N89/E98	UA83-230-236. Modified flake, gray green chert: A flake removed during bifacial thinning which still contains the platform and bulb of force. The distol end is missing. It is oval in shape with retouched lateral edges. Both the dorsal and ventral surfaces have been worked and ventral surfaces have been worked (Figure 3.103e).
	N89/E99	UA83-230-23. Microblade fragment, gray green chert: The proximal portion of a micro blade which contains a flat platform with an acute platform angle. The ventral surface is smooth except for evidence of the bulb of force. The dorsal surface contains three dorsal ridges and the step fractured remains of previous blade removal attempts (Figure 3.103d).

TABLE 3.29 (Continued)

Unit	Test Square	Description
		UA83-230-31. Microblade fragment, gray green chert: Distal section of microblade with one dorsal ridge. Contains a smooth ventral surface and cortex on the dorsal surface. The platform is not attached.
		UA83-230-33. Microblade fragment, basalt: Distal section of a microblade. No bulb of force or platform remains. The dorsal surface contains a single medial ridge (Figure 3.103b).
		UA83-230-44. Microblade fragment, gray green chert: The proximal section of a microblade. It is very thick and triangular in cross section. A single medial ridge is present on the dorsal surface. The platform is flat and makes a right angle with the ventral surface.
		UA83-230-24. Projectile point fragment, gray green chert: A possible projectile point base which was manufactured by edge retouch along the margins of a flake. The flaking does not extend across the surface of the point. The original dorsal and ventral flake surfaces can still be identified. The point contains a concave base and shows evidence of basal grinding (Figure 3.103n).

TABLE 3.29 (Continued)

Unit	Test Square	Description
		UA83-230-25. Projectile point fragment, gray green chert: A possible projectile point fragment manufactured by edge retouch. The flaking only occurs at the margins of the point and does not extend across the surface. It was manufactured on a very thin original flake (Figure 3.103 1).
		UA83-230-36. Projectile point fragment, gray green chert: A possible projectile point fragment. The shaping of the point was done with marginal retouching of an original flake. The Dorsal and ventral surfaces of the original flake can still be identified. The dorsal surface contains negative flake scars from four previously removed flakes.
		UA83-230-42. Projectile point fragment, gray green chert: Tip of projectile point on biface. Flaking on both surfaces is taken across the face of the point. Appears to be secondary flaking on one edge of point (Figure 3.103i).

TABLE 3.29 (Continued)

Unit	Test Square	Description
		UA83-230-43. Projectile point fragment, gray green chert: Tip of projectile point on biface. Good flaking which is taken across the both faces of the point. Step fractures occur on one of the two faces. The second face contains parallel flake scars (Figure 3.103j).
		UA83-230-41. End scraper, brown chert: The scraper is prepared from a thick blade shaped flake. A scraping edge is manufactured on the distal end of the flake. The worked edge contains an acute angle which may suggest a function other than scraping (Figure 3.103g).
	N89/E100	UA83-230-104. Unifacial tool, gray green chert: A flake removed during bifacial thinning which still contains the platform and bulb of force. It is triangular in shape. All three edges have been worked with edge retouch on the dorsal side. This tool resembles the flake like projectile points found in this stratum but is not shaped into a finished form (Figure 3.103f).

TABLE 3.29 (Continued)

Unit	Test Square	Description
		UA83-230-155. Blade fragment, argillite: Medial section of a possible blade. The ventral surface is smooth and contains no evidence of the bulb of force. The dorsal surface contains a single medial ridge.
7/6c Contact between layer paleosol and reddish yellow aeolian deposit	N89/E100	UA83-230-97. Projectile point, black chert: A projectile point made from a thin flake by edge retouching. Evidence still remains for original dorsal and ventral surfaces. The ventral surface has flaking going across the width of the point. It contains a concave base with a shape tang. One tang is missing and the tip is broken (Figure 3.103m).
	N89/E101	UA83-230-190. Projectile point fragment, basalt: A triangular biface with the tip end missing. It is very thin with flaking that is taken completely across the point. There is evidence of end thinning but no basal grinding or haft wear. It was probably broken in manufacture (Figure 3.103o).

TABLE 3.29 (Continued)

Unit	Test Square	Description
6/7/8 Contact between aeolian deposit, lower paleosol and glacial drift	N89/E100	UA83-230-86. Microblade fragment, gray green chert: A small medial section of a microblade. It is very thin and contains a smooth ventral surface. The dorsal surface has two medial ridges. Neither the platform or bulb of force are present. UA83-230-128. Projectile point fragment, basalt: A triangular shaped projectile point tip. Contains good parallel flaking on one face and has many step fractures on the opposite face. It is very thin and appears to have been broken in manufacture (Figure 3.103k).

Systematic Testing TLM 180--Tsusena Kame Site

Location: See Section 3.2

Testing:

The systematic phase of testing at TLM 180 involved excavating five 1 m by 1 m test squares. Four of the squares were placed on the south sloping side of the kame summit where reconnaissance testing revealed a dense artifact cluster. The 4 squares were arranged in a Y-shaped pattern (Figure 3.87), the 2 southern squares being superimposed over reconnaissance test pit 1. The arrangement of the squares provided 3 continuous profiles, each of 3 m in length, running along the E98 and E99 gridlines from N97 to N100, and along the N99 gridline from E97 to E100. The fifth test square was placed 9 m to the east along the N99 gridline.

Discussion:

Over 600 argillite flakes, 1 argillite microblade, and 3 chert microblades (UA83-106-15, 16, 17) were uncovered in a shovel test expanded to a 40 cm by 40 cm test pit (test pit 1) during reconnaissance testing at the Tsusena Kame site. It appeared that the site was possibly very localized because 8 of the 9 shovel tests placed on the kame were culturally sterile. One cultural component, lying at the contact between a grayish sandy silt stratigraphic unit and glacial drift, was represented in the single, productive test pit. Besides yielding an additional 784 lithic artifacts from all 5 of the test squares, the systematic phase of excavation also revealed that the site extended upslope and eastward at least 12 m across the summit of the kame, and that an upper cultural component was also present at TLM 180. A summary of the artifacts collected is presented in Table 3.31; artifact distribution by stratigraphic unit and by stratigraphic unit within each test square are presented respectively in Table 3.32 and Table 3.33.

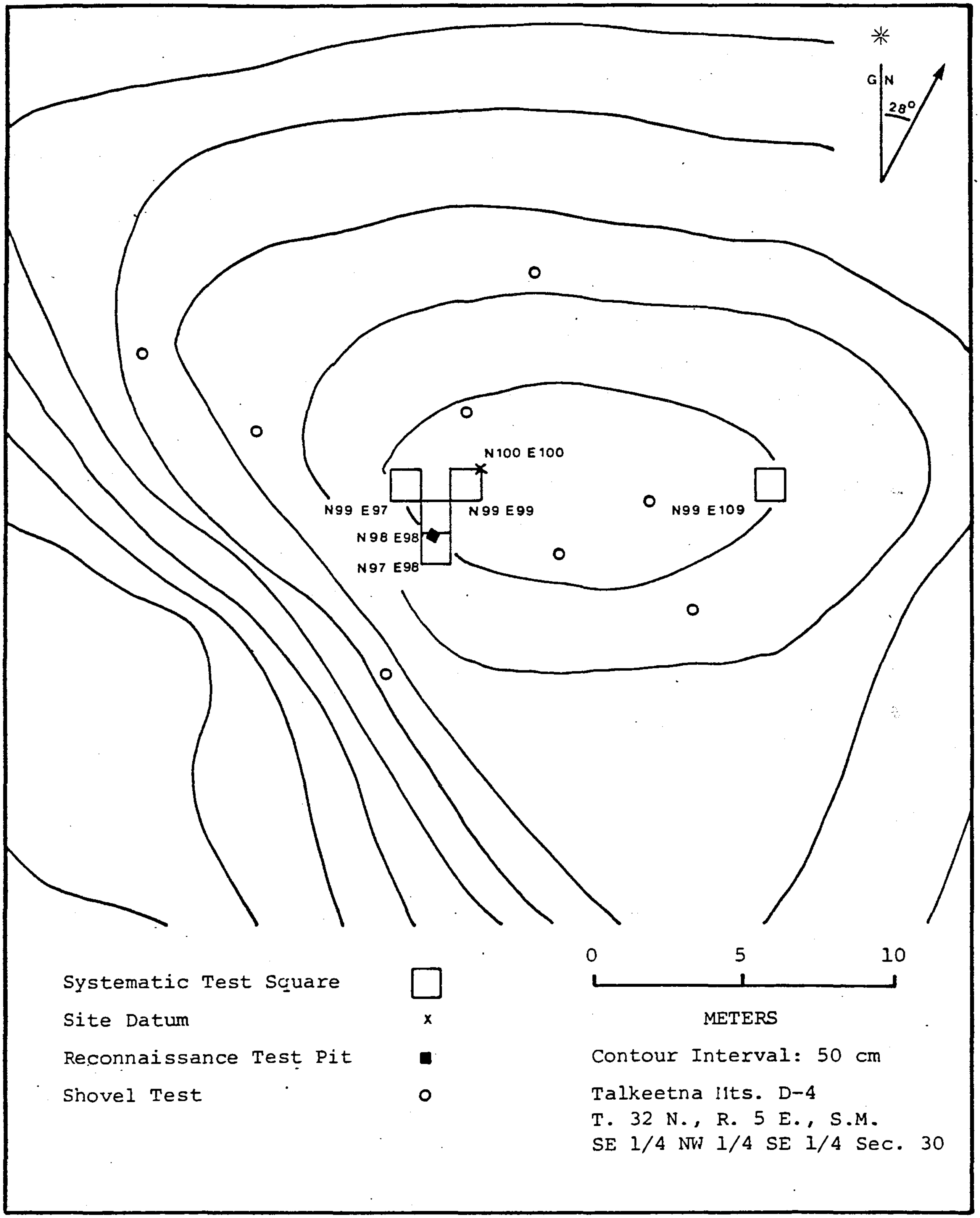
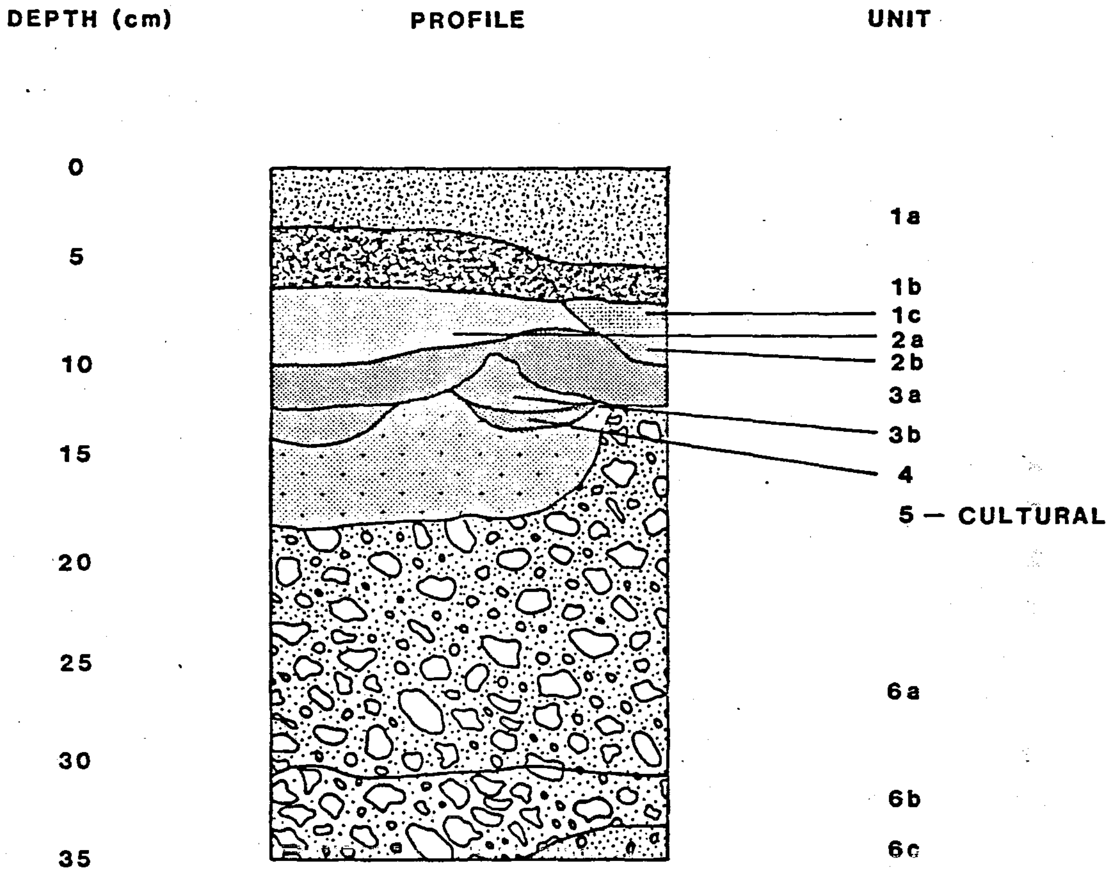


Figure 3.87. Site Map TLM 180.

By far the predominant lithic material encountered at TLM 180 was argillite, all artifacts of which had a characteristic weathered light brown patina. The other 4 types of lithic material was sparsely represented. Basalt was present only in the easternmost square, N99/E109, and a single quartzite flake was found in N99/E99. With the exception of a small gray chert piece of angular shatter, the only chert artifacts at the site were microblades, ranging in color from white to gray and to dark brown. A single black obsidian proximal microblade segment was encountered in N98/E98.

Six major stratigraphic units and numerous subunits were recognized at the Tsusena Kame Site (Figure 3.88, Table 3.30). In each square, the organic unit is underlain by Devil tephra (unit 2), Watana tephra (unit 3), sandy silt (unit 5), and finally glacial drift (unit 6). Although all the major stratigraphic units, except unit 4, are present in each of the squares, 3 of the subunits (1c, 2b, and 6c) are restricted to N99/E97. Unit 4 is a fine-grained silt with decomposed organics and some charcoal flecks. A great deal of variability in color, mixing, and continuity of strata within each test square is evident at the site. In general, the stratigraphy at TLM 180 is characterized by much post-depositional disturbance. Downslope movement in the form of solifluction and frost creep is apparent. Frost heaving and deflation were also responsible for further disturbing the stratigraphy.

A distinct contrast in the amount of non-cultural disturbance between the 3 western squares (N99/E99, N98/E98, and N97/E98) and the 2 eastern squares (N99/E99 and N99/E109) was noted early in the excavation. Despite the fact that N99/E99 and N99/E109 are separated by 9 m, their stratigraphy is similar in terms of relative continuity of the Devil tephra (unit 2), Watana tephra (unit 3), and the grayish sandy silt (unit 5). Similarity also exists in the depth, up to 25 cm, of the soils/sediments overlying the drift. The western squares, on the other hand, exhibit very shallow (usually not greater than 10 cm) deposition over the drift. Because the tephra units in these squares are represented by discrete lenses, the surface being excavated usually had



Unit 4

UA83-106-402:
2800 ± 90 years: 850 B.C. (Beta-7297)

Figure 3.88. Composite Profile TLM 180.

a very mottled appearance. Mottling and mixing was particularly evident in N99/E97 where subunit 1c, comprised of organics, Devil and Watana tephras, and glacial drift, and subunit 2b, a color gradation of Devil tephra, were identified.

A cultural unit of sandy silt varying in color from grayish brown to dark yellowish brown (unit 5), and containing lithic material particularly abundant in N99/E99, was encountered immediately above the glacial drift in all the test squares. A sample of this stratum from N99/E109 was submitted for petrographic analysis, and although not found to be a tephra, did have some tephra components in it. Its stratigraphic position above the drift suggests that it may represent a reworked Oshetna tephra mixed with aeolian sediments. A thin charcoal lens directly above unit 5 on the west wall of N99/E109, submitted for radiocarbon analysis, provided an upper bracketing date for this unit of 2800 ± 90 years: 850 B.C. (Beta-7297).

Cultural material at the Tsusena Kame site is associated with stratigraphic units 2, 3, 5, and 6, and the zones of contact between these units. A marked contrast can be seen in the stratigraphic distribution of artifacts between the 4 contiguous squares on the one hand, and the isolated easternmost square, N99/E109, on the other. Whereas only 5 artifacts, 2 argillite flakes and 3 microblades (UA83-106-168, 169, 290) were found above the cultural unit (unit 5) in 2 of the western squares (N98/E98 and N99/E97), the majority of artifacts (54 of the total 61) were situated above this cultural unit in N99/E109. The presence of basalt flakes only in this isolated square further contrasts it with the other squares on the kame.

Although not stratigraphically well-defined, an upper site component is only clearly evident in N99/E109. Whether the 7 lithics lying at the contact between units 5 and 6 in this square are representative of a lower site component or merely indicate displacement from the upper component as a result of cryoturbation is still unclear. Artifacts from N99/E109 consist primarily of small basalt and argillite waste flakes. One basalt cortex flake and 1 basalt blade-like flake (UA83-106-140) were also found in the square.

Association of the 2 argillite flakes and 3 microblades found above the cultural unit in N98/E98 and N99/E97 with the upper component is problematical. The disturbed nature of the stratigraphy and the difficulty in positively identifying tephra units while excavating the highly mottled surface prevented their positive association with either of the cultural components. Two factors strongly suggest that they are actually representative of an upper component on the western end of the kame. First, a variety in lithic material--obsidian, white chert, and brown chert--is obvious among the 3 microblades in the upper strata. In contrast, the lithology of the 4 microblades definitely associated with the lower component is identical--gray chert with a patinated surface. Secondly, argillite flakes occur in the upper component in N99/E109, and so may likewise be represented in this component in the western squares.

The lower component at TLM 180, stratigraphically situated in the sandy silt cultural unit (unit 5), at the contact between this unit and glacial drift (unit 5/6), and lying immediately on top of the drift (unit 6), is well-represented in the 4 contiguous test squares. In 2 squares where unit 5 is discontinuous, N98/E98 and N99/E97, artifacts were also found at the contact of Watana tephra and the drift (unit 3/6). A total of 718 lithics comprise the artifact assemblage from the lower component in these 4 squares. Included within this total are 698 argillite flakes, ranging in length from 5 mm to 70 mm, 1 quartzite flake, 2 argillite pieces of angular shatter, 1 chert piece of angular shatter, 4 argillite blade-like flakes (UA83-106, 230, 288, 313, 379), 2 argillite retouched flakes (UA83-106-303, 304), 3 argillite primary reduction flakes (UA83-106-204, 297, 336; Figure 3.104 k), 3 argillite blocky cores (UA83-106-390, 400, 401; Figure 3.104 h, i, j) and 4 chert microblades (UA83-106-310, 312, 359, 396; Figure 3.104 g, c, a, d). Descriptions of the tools are summarized in Table 3.34.

Although the densest concentration of lower component artifacts is situated directly on top of the glacial drift, it appears that their primary association might actually be with the overlying sandy silt cultural unit (unit 5). This is best exemplified in N99/E99 where a heavy concentration of argillite flakes was found within thick pockets of sandy silt (unit 5) in the northern half of the square. This square, lying slightly upslope from the other 3 contiguous squares, exhibited the least post-depositional disturbance and greatest continuity of unit 5. In the 2 downslope squares, N98/E98 and N97/E98, where an abundance of artifacts was found lying on the drift, unit 5 appears to have been eroded to such an extent that it occurred only as a thin layer or as discrete lenses.

Dating of the lower component at TLM 180 has proven to be difficult because of the scarcity of charcoal or other organic remains in the test squares. The only charcoal sample taken at the site was radiocarbon dated at 2800 ± 90 years: 850 B.C. This sample, however, does not date the cultural component itself, but a thin charcoal lens lying between the Watana tephra (unit 3) and the sandy silt (unit 5) in N99/E109. The date, falling within the range of dates for Watana tephra, i.e., 2300-3200 B.P. (Dixon et al. 1982b), chronologically separates the upper and lower cultural components at TLM 180. At present, the actual date for the lower component at TLM 180 can only be approximated by typological comparison with assemblages from other sites.

Evaluation:

The Tsusena Kame Site, located on one of several kames just east of Tsusena Creek, lies within close proximity to a potentially good source of lithic material along the stream course. Argillite cobbles were collected by one of the field crew during reconnaissance around the mouth of the creek, less and 2 km from the site. Although the view from the site is presently obstructed by thick stands of spruce, in the past it may have afforded a good vantage point for spotting game while flintknapping. Tool manufacture appears to have been the primary cultural activity at the site as indicated by the abundance of lithic debitage, plus discarded primary reduction flakes and cores. The complete absence of bone or stone features coupled with the scarcity of charcoal usually associated with temporary camps or habitation sites, also support the interpretation that the site was used mainly as a tool manufacturing station during at least 2 different time periods, probably separated by several thousand years.

Two cultural components have been recognized at TLM 180, but have proven to be problematical in terms of dating. Based on the stratigraphic position within the Devil and Watana tephras, potential dates for the upper component span a time period from 1800-3200 years B.P.: A.D. 150-1250 B.C. The radiocarbon analysis derived from charcoal just below the Watana tephra in N99/E109 provides a more specific lower limiting date of 2800 ± 90 B.P.: 850 B.C. (Beta-7297) for the upper component. The only diagnostic tools probably associated with this component are 3 microblades with lithologies that differ from the microblades occurring stratigraphically lower in the site. Placing these upper component artifacts within a particular Interior Alaska tool tradition is difficult at present, but we do know that microblades occur in Arctic Small Tool assemblages from coastal Alaskan sites dating as recently as 1000 B.C.

Much better represented at TLM 180 is the lower cultural component lying on glacial drift and within an overlying sandy silt stratum possibly containing reworked tephras. The assemblage from this component, comprised of frequently very large argillite flakes, blade-like flakes, primary reduction flakes, blocky cores, and chert microblades, greatly resembles the assemblage from the oldest component at TLM 027, the Tuff Creek North site (Dixon et al. 1982a), situated approximately 3 km to the southwest on the opposite side of the Susitna River. The similarities between these 2 sites includes not only artifact type, i.e., blocky rotated cores, large flakes, etc., but also lithic material used in tool manufacture. The weathered chert identified at TLM 027 is visually identical to what has been called heavily patinated argillite at TLM 180. The stratigraphic context of artifacts found lying just above the drift is also quite similar for both sites. Like the Tuff Creek North site, TLM 180 is most appropriately placed within the American Paleoarctic Tradition, postulated as occurring in the Interior from ca. 3000-9000 B.C.

The Tsusena Kame Site has proven to be a valuable addition to the inventory of sites within the project area. Few sites of such antiquity are known along the Susitna River and deserve considerable attention.

The goals of future excavation at TLM 180 are to more precisely determine the spatial extent of the site, further clarify the stratigraphic position of the lower cultural component, and obtain additional samples suitable for radiocarbon analysis so dates for both upper and lower components can be more firmly pinned down.

TABLE 3.30

SOIL/SEDIMENT DESCRIPTIONS FOR COMPOSITE PROFILE, TLM 180.

Unit	Description
1a	Surface organic layer: roots and plant material from lichen, moss, crowberry, blueberry, lowbush cranberry, Labrador tea, dwarf birch, and white spruce underlain by consolidated sandy silt; dark reddish brown (5 YR 3/3). Generally 2-6 cm in thickness, but varies from not present on north wall of N99/E97 to 17 cm in thickness in eastern squares. Lower boundary is clear and wavy. Continuous except where deflated in N99/E97.
1b	Fine sandy silt humus layer; black (5 YR 2.5/1). Varies from .5-6 cm in thickness. Clear and wavy upper contact; lower contact clear to diffuse. Leaching of organic material and mixing with underlying unit evident. Generally continuous, but also occurs as lenses.
1c	Sandy silt mixed with pebbles; mottled (5 YR 3/3, 7.5 YR 2/0, 10 YR 6/2, 7.5 YR 3/4, 7.5 YR 4/6). Thickness varies from .5-3 cm. Indistinct lower boundary. Mixed unit containing sediments from 1a, 1b, 2a, 3a, and 6a. Occurs only in a slight surface depression or gully in the northern half of N99/E97.

TABLE 3.30 (Continued)

Unit	Description
2a	Fine-grained silt; color varies from pinkish-gray (7.5 YR 7/2) to pale brown, light brownish-gray, dark gray and light reddish brown (10 YR 6/3, 10 YR 6/2, 10 YR 4/1, 5 YR 6/3) depending upon degree of leaching from overlying unit. Thickness varies from .5-5 cm. Clear to diffuse contacts. Tephra (Devil). Consolidation of unit by roots and rootlets. Discontinuous; occurs as lenses or intermixed with adjacent units. Basalt and argillite flakes plus chert microblades derived from this unit. Additional flakes & obsidian microblade at contact with unit 3.
2b	Silt mixed with finely-sorted organics; dark grayish brown (10 YR 4/2). Variation in thickness from .5-5 cm. Clear to diffuse contacts. Tephra (Devil); illuvial B horizon. Discontinuous; occurs only in N99/E97 as lenses.
3a	Fine-grained silt, mixed with grus; dark brown to dark reddish brown (7.5 YR 3/4, 5 YR 3/4). Thickness varies from 1-3 cm. Diffuse contacts and mixing with underlying unit. Tephra (Watana). Root penetration. Discontinuous, appears as oxidized lenses.

TABLE 3.30 (Continued)

Unit	Description
3b	Fine-grained silt mixed with grus; varies from yellowish brown (10 YR 5/6) in 2 eastern squares to dark brown (7.5 YR 4/2 to 7.5 YR 4/4) in 3 western squares. Thickness varies from 1-2 cm pockets in the 3 western squares to 4-8 cm in the 2 eastern squares. Undulating surfaces; gradational upper boundary and mixing with underlying unit. Discontinuous, occurs frequently as lenses. Basalt flakes within unit. Basalt and argillite flakes at upper and lower contacts.
4	Fine silt with decomposed organic material; black (5 YR 2.5/1 to 7.5 YR 2/0). Very thin (.5 cm) layer. Clear to diffuse contacts with undulating boundaries. Occurrence only in N98/E98 N99/E99 & N99/E109 as discrete lenses. Charcoal flecks and chunks occur only on west wall of N99/E109. One radiocarbon date: 2800 ± 90 years B.P.
5	Sandy silt with grus and pebbles; color varies from grayish brown (10 YR 5/2) to brown (10 YR 5/3) in eastern squares and from dark brown through yellowish brown (10 YR 3/3, 10 YR 5/4, 10 YR 3/4) in western squares. Thickness varies from 1-2 cm in western squares to 3-10 cm in eastern squares. Clear to diffuse contacts with adjacent unit. Some tephra components in unit present in all squares but discontinuous in each. Argillite flakes are common, particularly at the contact with unit 6, where chert microblades occur.

TABLE 3.30 (Continued)

Unit	Description
6a	Sandy silt, with pebbles, and cobbles; strong brown (7.5 YR 4/6) to dark brown (7.5 YR 3/4) in all squares except N99/E109 where color graded from yellowish brown (10 YR 5/6) into yellowish red (5 YR 4/6). Thickness generally ranged from 10-20 cm. Undulating surfaces. Gradational lower boundary. Glacial drift with cobbles reaching a maximum of 40 cm. Poorly sorted. Argillite flakes very common; also occurrence of argillite cores and chert microblades.
6b	Sandy silt with pebbles and cobbles; generally dark grayish brown (2.5 YR 4/2). Glacial drift. Poorly sorted. Excavation into this unit determined the limit of excavation except in N99/E97.
6c	Clayey sandy silt mixed with pebbles and cobbles; dark grayish brown (2.5 YR 4/2). Glacial drift. Poorly sorted. Excavation into this unit determined limit of excavation of N99/E97.

TABLE 3.31

ARTIFACT SUMMARY, TLM 180.

Lithic Material	
730	Weathered light brown argillite flakes
26	Black basalt flakes
1	Black basalt flake with cortex
1	Gray quartzite flake
5	Weathered light brown argillite pieces of angular shatter
1	Gray chert piece of angular shatter
4	Weathered light brown argillite blade-like flakes (UA83-106-230, 288, 313, 379)
1	Black basalt blade-like flake (UA83-106-140)
2	Weathered light brown argillite retouched flakes (UA83-106-303, 304)
3	Weathered light brown argillite primary reduction flakes (UA83-106-204, 297, 336)
3	Weathered light brown argillite blocky cores (UA83-106-390, 400, 401)
6	Chert microblade segments (white, gray, dark brown) (UA83-106-168, 290, 310, 312, 359, 396)
1	Black obsidian microblade segment (UA83-106-169)
784	Total

TABLE 3.32

ARTIFACT SUMMARY BY STRATIGRAPHIC UNIT, TLM 180.

Devil tephra (unit 2)	2 Argillite flakes 2 Basalt flakes 2 Chert microblades (UA83-106-168, 290)
Devil tephra/Watana tephra (unit 2/3)	7 Argillite flakes 3 Basalt flakes 2 Argillite pieces of angular shatter 1 Obsidian microblade (UA83-106-169)
Watana tephra (unit 3)	3 Basalt flakes 1 Basalt flake with cortex
Watana tephra/Sandy silt cultural unit (unit 3/5)	18 Argillite flakes 17 Basalt flakes 1 Basalt blade-like flake (UA83-106-140)
Sandy silt cultural unit (unit 5)	130 Argillite flakes 1 Quartzite flake 1 Argillite blade-like flake (UA83-106-230)
Watana tephra/Glacial drift (unit 3/6)	32 Argillite flakes
Sandy silt cultural unit/Glacial drift (unit 5/6)	131 Argillite flakes 1 Basalt flake 1 Argillite piece of angular shatter 1 Chert piece of angular shatter 3 Chert microblades (UA83-106-310, 359, 396)

TABLE 3.32 (Continued)

Glacial drift (unit 6)	403 Argillite flakes 2 Argillite pieces of angular shatter 2 Argillite retouched flakes (UA83-106-303, 304) 3 Argillite blade-like flakes (UA83-106-204, 297, 336) 3 Argillite primary reduction flakes (UA83-106-204, 297, 336) 3 Argillite blocky cores (UA83-106-390, 400, 401) 1 Chert microblade (UA83-106-312)
Unit Unknown (test pit backfill)	7 Argillite flakes

TABLE 3.33

ARTIFACT SUMMARY BY TEST SQUARE AND STRATIGRAPHIC UNIT, TLM 180.

	Test Squares				
Soil Unit	N97/E98	N98/E98	N99/E97	N99/E99	N99/E109
2 (Devil tephra)	--	1 Chert micro-blade (UA83-106-168)	2 Argillite flakes; 1 chert micro-blade (UA83-106-290)	--	2 Basalt flakes
2/3 (Contact between Devil and Watana tephras)	--	1 Obsidian microblade (UA83-106-169)	--	--	7 Argillite flakes 3 Basalt flakes 2 Argillite pieces of angular shatter
3 (Watana tephra)	--	--	--	--	3 Basalt flakes 1 Basalt cortex flake

TABLE 3.33 (Continued)

Soil Unit	Test Squares N97/E98	N98/E98	N99/E97	N99/E99	N99/E109
3/5 (Contact between Watana tephra and sandy silt cultural unit)	--	--	--	--	18 Argillite flakes 17 basalt flakes 1 Basalt blade-like flake (UA83-106-140)
5 (sandy silt cultural unit)	2 Argillite flakes	--	2 Argillite flakes	119 Argillite flakes 1 Quartzite flake 1 Argillite blade-like flake (UA83-106-230)	--

TABLE 3.33 (Continued)

Soil Unit	Test Squares				
	N97/E98	N98/E98	N99/E97	N99/E99	N99/E109
3/6 (Contact between Watana tephra and glacial drift)	--	22 Argillite flakes	10 Argillite flakes	--	--
5/6 (Contact between sandy silt cultural unit and glacial drift)	60 Argillite flakes 1 Chert piece of angular shatter 2 Chert micro-blades (UA83-106-359, 396)	59 Argillite flakes	2 Argillite flakes 1 Chert micro-blade (UA83-106-310)	5 Argillite flakes	5 Argillite flakes 1 Basalt flake 1 Argillite piece of angular shatter

TABLE 3.33 (Continued)

Soil Unit	Test Squares N97/E98	N98/E98	N99/E97	N99/E99	N99/E109
6 (glacial drift	293 Argillite flakes 1 Argillite piece of angular shatter 1 Argillite blade-like flake (UA83-106-379) 1 Argillite primary reduction flake (UA83-106-336) 2 Argillite blocky cores (UA83-106-400, 401)	100 Argillite flakes 1 Argillite blade-like flake (UA83-106-288) 1 Argillite primary reduction flake (UA83-106-204)	10 Argillite flakes 1 Argillite piece of angular shatter 1 Argillite blade-like flake (UA83-106-313) 2 Argillite retouched flakes (UA83-106-303, 304) 1 Argillite primary reduction flake (UA83-106-197)	--	--

TABLE 3.33 (Continued)

	Test Squares				
Soil Unit	N97/E98	N98/E98	N99/E97	N99/E99	N99/E109
			1 Argillite blocky core (UA83-106-390) 1 Chert micro-blade (UA83-106-312)		

TABLE 3.34

TOOLS AND TOOL FRAGMENTS BY STRATIGRAPHIC UNIT, TLM 180.

Unit	Test Square	Description
2 Devil tephra	N98/E98	UA83-106-168. Dark reddish gray microblade, medial section, with possible retouch along straight-sided lateral margins; 22 mm in length.
	N99/E97	UA83-106-290. White chert microblade, distal section; dorsal surface formed by 4 blade facets, one of which terminates in a hinge fracture; 27 mm in length.
2/3 Contact between Devil and Watana tephras	N98/E98	UA83-106-169. Obsidian microblade, proximal section; bulb of percussion preserved; 12.5 mm in length.
5/6 Contact between sandy silt and glacial drift	N97/E98	UA83-106-359. Gray chert microblade, distal section; irregular lateral margins with weathering on ventral surface; 14 mm in length.
		UA83-106-396. Grey chert microblade, proximal section; weathering on dorsal surface; 13 mm in length.
	N99/E97	UA83-106-310. Gray chert microblade, complete except for distal tip; bulb of percussion intact with platform well-defined; irregular lateral margins with weathering on dorsal surface; 19.5 mm in length.

TABLE 3.34 (Continued)

Unit	Test Square	Description
6 Glacial drift	N97/E98	UA83-106-336. Argillite primary core reduction flake; dorsal surface consists of bifacial edge with distinct ridge; triangular in cross section; 75 mm in length.
		UA83-106-400. Argillite blocky rotated core with large flat platform; heavily patinated; measures 62 mm by 57 mm.
		UA83-106-401. Argillite blocky core with heavy step fracturing, subrectangular in shape; no facet appears to have been used consistently as a platform; heavy patination; measures 55 mm by 65 mm.
	N98/E98	UA83-106-204. Argillite primary core reduction flake (in 2 articulating pieces); dorsal surface consists of bifacial edge with steep-sided, heavily patinated ridge; platform present; 53 mm in length.
	N99/E97	UA83-106-297. Argillite primary core reduction flake; dorsal surface consists of bifacial edge; platform present; 62 mm in length.
		UA83-106-303. Argillite unifacially retouched flake; retouching occurs on both lateral margins; many small step fractures occur at platform edge; 63 mm in length.

TABLE 3.34 (Continued)

Unit	Test Square	Description
		UA83-106-304. Argillite retouched flake; bifacial retouch along one lateral margin; platform present; 69 mm in length.
		UA83-106-312. Gray chert microblade, proximal section; patination on dorsal surface; 12 mm in length.
		UA83-106-390. Argillite blocky rotated core; exhibits several facets, one of which appears to be the dominant platform; patination heavy on one surface of core with heavy weathering evident on opposite face; measures 64 mm by 54 mm.

Systematic Testing TLM 184--Flat Knoll Site

Location: See Section 3.3

Testing:

Four 40 cm by 40 cm reconnaissance test pits were excavated on the site knoll and subsequently ten 1 m by 1 m test squares were systematically excavated in a checkerboard pattern between the two most productive test pits. The squares were placed near the summit of the knoll which is circular and approximately 50 m in diameter. The ten test squares were juxtaposed to produce a continuous nine meter east-west profile and a three meter north-south profile (Figure 3.89).

Discussion:

During reconnaissance level testing the first shovel test excavated into the site encountered artifactual material. This shovel test was expanded to a 40 cm by 40 cm test pit (test pit 1) and yielded approximately 110 flakes. Another shovel test placed 10 meters to the west was expanded into a test pit (test pit 2) and over 300 burnt and unburnt bone fragments and nine flakes were found. Two other test pits were opened on the knoll. Test pit 3 was located approximately 13 meters to the south of test pit 2 and test pit 4 was located about ten meters to the west of test pit 2 (Figure 3.89). These additional test pits produced six artifacts. Ten systematic test squares were placed on the site between the two most productive test pits, 1 and 2 respectively. These squares collectively produced approximately 26689 bone fragments, 2218 flakes and 26 various tool forms.

All ten of the test squares produced artifactual material during systematic testing. Six of the ten squares produced over 100 lithic specimens. Of these squares, test square N100/E102 has the greatest amount of cultural material, 836 lithic specimens and 26,032 pieces of bone were collected from the square. From all the squares combined, a total of 2,247 lithic artifacts and 26,689 bone fragments were

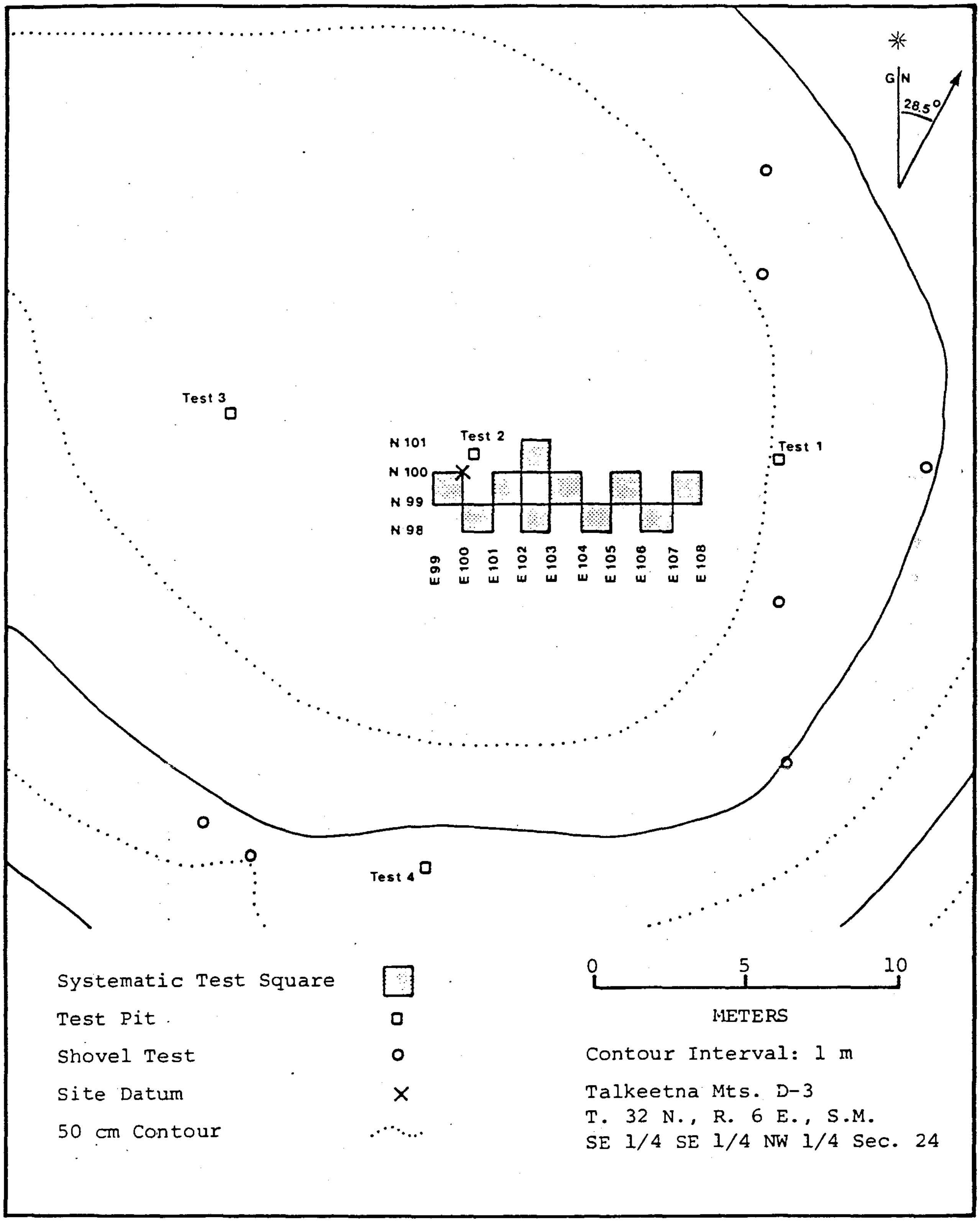


Figure 3.89. Site Map TLM 184.

recovered. The total number and spatial distribution of tools is listed in Table 3.40. The distribution of materials by stratigraphic unit is listed in Table 3.38 and the distribution of material by stratigraphic unit and test square is listed in Table 3.39.

Seven broad classes of lithic raw materials were identified in the collected assemblage of lithic specimens. One of these classes, chert, was subdivided into groups based on color. Further subdivision of the lithic material produced a total of ten types of lithic raw materials, basalt, obsidian, argillite, quartzite, dark gray to black chert, white chert, red chert, brown chert, chalcedoney, and shale. This classification is based on two principal attributes derived from the genesis of rock, particle size or texture and composition. The classes are kept broad enough to reduce the amount of overlap between groups while at the same time providing the greatest amount of internal cohesion. Even when using a broad classification scheme the possibility of overlap in groups is great when dealing with rocks in the same family (sedimentary, igneous, metamorphic). For instance, the argillites and cherts can be very similar morphologically because both are produced in the same manner, but only differ in the amount of silica (SiO_2) present. In situations where artifacts undergo great amounts of weathering the chemical composition of the rock is easily masked. The lithic groups used in this study provide a base from which later kinds of analysis can be conducted while at the same time providing a reliable indication of the amount of variability within our assemblage.

Eleven soil/sediment units were identified at TLM 184. Figure 3.90 shows the vertical superposition of these units and Table 3.38 provides a verbal description of the various unit characteristics. Seven of the ten test squares contained traces of nine soil/sediment units and three of the test squares contained all ten of the units. The vertical placement of the soil/sediment units is consistent throughout the site. In some squares the units were mottled or slightly mixed, but in general, the superposition of units was not contradictory from individual square to individual square.

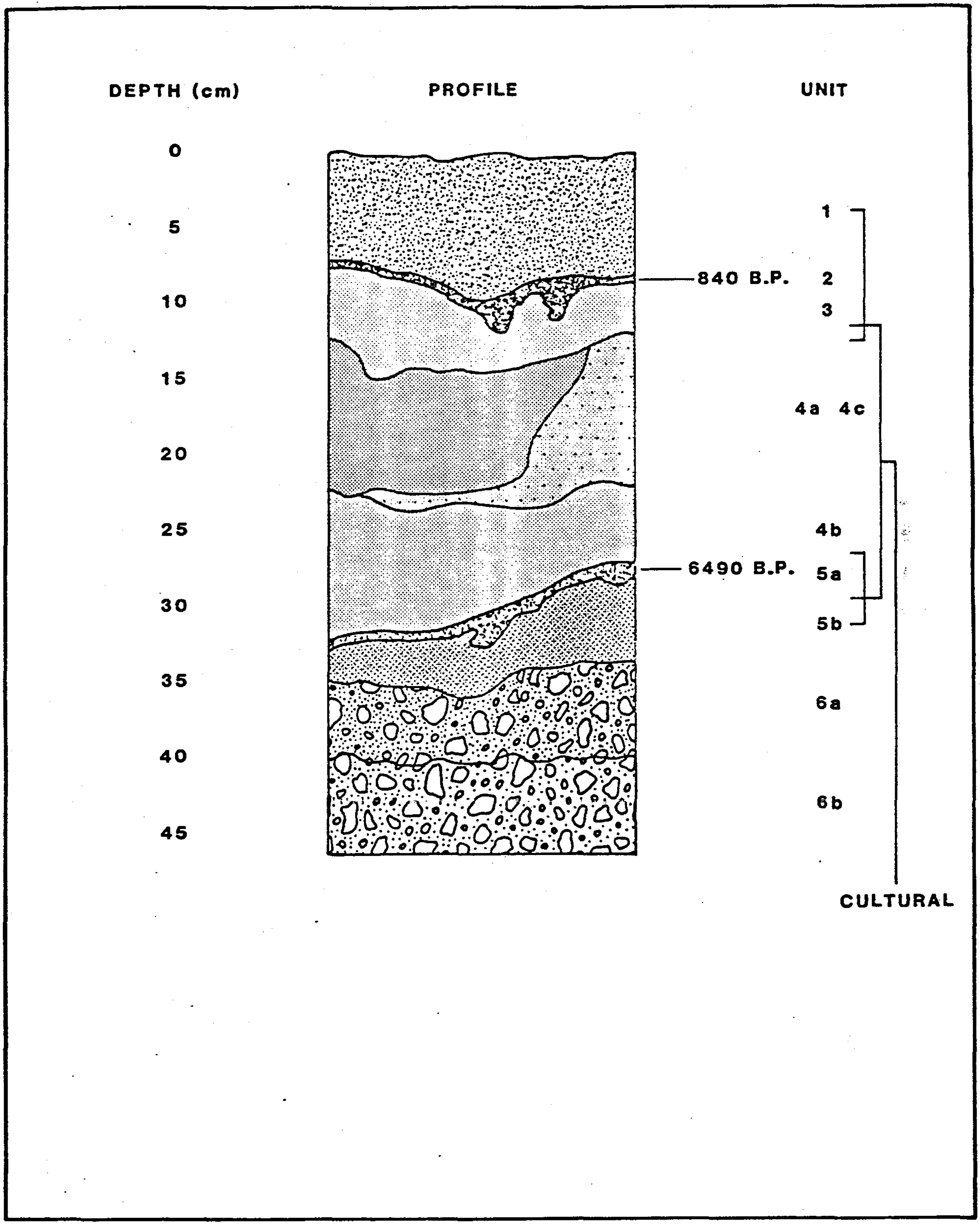


Figure 3.90. Composite Profile TLM 184.

TABLE 3.35

SOIL/SEDIMENT DESCRIPTION FOR COMPOSITE PROFILE, TLM 184.

Unit	Description
1	Unit 1 is the organic root mat. The vegetation includes birch, dwarf birch, lichen, sphagnum moss, Labrador tea, blueberry and cranberry. This unit varies from a dark reddish brown (2.5 YR 3/4) to dark brown (7.5 YR 3/4). Unit 1 varies between ca. 1 cm and 15 cm in thickness, and variable across the site. Artifacts were recovered at the base of this unit along the contact with unit 2.
2	Unit 2 is a fine grained sediment with finely divided organics, decomposed organics, and rootlets. Carbon staining occurs throughout the unit. The sediment color ranges from a very dark brown (10 YR 2/2) to black (10 YR 2/1). This unit is as thick as 10 cm in some squares and narrows to a small stringer in other squares. It is almost always found between the upper organic mat and the lower Devil tephra. It is also continuous over the entire site area and is only missing in very small and few patches in some squares. Artifacts are found in association with this unit, usually along the upper contact and the lower contact. The lower contact has been radiocarbon dated at 840 ± 60 B.P. and 1060 ± 70 B.P.
3	Light gray to pinkish gray fine silt. It is fairly clean and powders in the hand (5 YR 6/1 to 7.5 YR 7/2). The thickness varies from .5 cm to 8 cm. It is usually in contact with unit 2 and with unit 4a. In some squares it will be in contact with unit 4c. Unit 3 is a volcanic

TABLE 3.35 (Continued)

Unit	Description
	sediment identified as the Devil tephra unit. It is continuous over the entire site except in the northeast corner of test square N100-E102. Artifacts are found at the upper contact, the lower contact, and within the gray unit.
4a	The matrix is composed of compacted heavily to lightly oxidized fine silt which powder in the hand. Pea gravels occur regularly throughout this unit. The color tends to be a dark reddish brown (5 YR 3/4). The upper contact is most often with the Devil tephra (unit 3), but the lower contact is variable and may be with units: 4b, 4c, 5a or 5b. In many places across the site this unit will appear as a mottled matrix. Unit 4a is a volcanic sediment identified as the Upper Watana tephra. This unit is continuous across the site but is occasionally mixed with units 4b and 4c. Artifacts occur throughout this unit.
4b	This unit is identified as the Lower Watana tephra and is continuous throughout the site. The unit varies in color from a brownish yellow (10 YR 6/6) to a light brown (7.5 YR 6/4). It usually appears as a mottled matrix or in patches. It is almost always associated with the Oxidized Watana tephra but is very discontinuous across the site and across individual squares. Generally this unit is sterile but a total of four flakes were found within the unit.

TABLE 3.35 (Continued)

Unit	Description
4c	The matrix is composed of loose loamy silt which contains great amounts of decomposed organics, carbon, charcoal flecks, roots and small burnt and unburnt bone fragments. The silt is very dark grayish brown (10 YR 3/2) to a dark brown (10 YR 3/3) in color. The unit varies in thickness from 2 cm to 13 cm. In some places it is overlaid by unit 4a and unit 3. Its lower contact is variable and may be with unit 4b, 5a, 5b or 6a. The matrix is an altered Watana tephra. This unit is restricted to a small portion of the exposed site and is discontinuous over the entire site area. Artifacts are found along each of the contacts and throughout the unit.
5a	A loamy silt with decomposed organics, carbon staining and small pieces of charcoal. It is black in color (10 YR 2/1) and occurs as a lens which undulates in thickness from .5 cm to 2 cm. It is always in contact with the lower 5b unit and its upper contact is variable. Traditionally this unit has been recognized as the paleosol above the Oshetna tephra. It is discontinuous over the entire site but is found in every square. Artifacts are found associated with this unit as well as its contacts.
5b	The matrix is a light gray very fine matrix which powders and streaks in the hand (10 YR 5/1). The unit varies in thickness. At places it is as thin as .5 cm and may get as thick as 12 cm. The unit is usually overlaid by the black paleosol (5a) and is underlaid by glacial drift. Because of its stratigraphic position, this unit has been recognized as the Oshetna tephra. Particle analysis of

TABLE 3.35 (Continued)

Unit	Description
	three samples taken from this unit all indicate that these sediments are not volcanic in origin. There is a high probability that if these sediments are Oshetna tephra, they have been mixed with other non-volcanic sediments. This unit is found in all of the test squares but is disturbed and discontinues in each square. Nine artifacts have been found within this sediment unit.
6a	This matrix is composed of approximately 50% compacted silts and 50% gravels which range in size from pear to cobbles. The matrix tends to be oxidized and ranges in color from a strong brown (7.4 YR 4/6) to a yellowish red (5 YR 4/6). The thickness undulates from patches approximated 2 cm to layers that extend to the base of the excavation. It is almost always found directly below the Oshetna tephra and above the unoxidized glacial drift. This unit has traditionally been recognized as the oxidized glacial drift. It is found in all the test squares at the site but is not always continuous across an individual square. Artifacts are not usually found in this unit although one flake made of shale was recovered. The flake is questionable because much of the drift material is also composed of shale fragments.
6b	The matrix is composed of 50% gravels and 50% silts. The gravel consistency is the same as that found in unit 6a, but the silts are less compacted due to no oxidation. The color is a light olive brown (2.5 Y 5/4). This unit usually occurs at the base of unit 6a or 5b and extends to the bottom of the excavation. It is known as the

TABLE 3.35 (Continued)

Unit	Description
	unoxidized glacial drift and is found in every test square on the site and is continuous over the entire site area. This unit contains no cultural material.
6c	The matrix is a crumbly mud or siltstone which resembles decomposing shale. It is a very dark grayish brown (2.5 Y 3/2). It only occurs as a patch in one square and is always within the glacial drift. No artifacts are associated with this unit.

As with most sites in the project area there are three broad kinds of soil/sediment units found at TLM 184. These include, natural depositional units, the contacts between them, and cultural units. A general stratigraphic section from the site would consist of glacial drift as the lower most unit. The drift contains two sections, with the upper being heavily oxidized. There is no difference in constituent parts between the two except for the oxidized nature of the upper portion. A volcanic sediment zone, The Oshetna tephra, caps the glacial drift. Above the Oshetna tephra is paleosol characterized by a black lens of charcoal and carbonized organics. Above the paleosol is the upper oxidized Watana and lower unoxidized Watana tephras. Both of these deposits have been recognized as the Watana tephra. In three of the squares a cultural deposit (unit 4c) is found at the same vertical position as the Upper Watana tephra and the Upper Watana is not present at these squares. Above the Watana tephra is found a third volcanic, the Devil tephra. Above the Devil tephra is found a lens of organics and charcoal, usually associated with cultural material. This entire sequence is capped by a contemporary root mat.

The cultural deposit found within the Watana tephra (4c) occurs in three of the ten test squares. It is found in all parts of the northern most square (N100/E102) and only in the northeast corner of (N94/E101) and the northwest corner of (N99/E103). This unit averages approximately 8 cm in thickness but varies from 2 cm to 13 cm. The matrix appears to be composed of an altered Upper Watana tephra mixed with burned and unburned bone fragments. Both bone and chipped stone artifacts are found throughout the matrix.

Nine of the eleven soil/sediment units have associated cultural material within or at its contact. The site is multicomponent in character with at least two and most probably three separate occupations. The lower most component is fairly distinct stratigraphically and occurs at the paleosol above the Oshetna tephra. The two uppermost components are more difficult to isolate stratigraphically because of the continuous nature of the artifacts represented in the soil/sediment units beginning at unit 2 and continuing through units 4a and 4c. The greatest concentration of artifacts is found at the unit 2/3 contact. This contact is probably where the first component is concentrated. The middle component occurs at the 3/4a contact and continues into the Watana tephras. This middle component probably includes units 4a and 4c.

Bone from TLM 184 was found predominately in units 4a and 4c of test square N100/E102 (Table 3.37). Most specimens were small calcined unidentifiable fragments, usually with a maximum dimension of less than 5-10 millimeters. Of the 26,689 bone fragments, 115 pieces were identified to skeletal element, and 83 of these were determined to be caribou (*Rangifer tarandus*). The remaining identified fragments could be classified as either caribou or Dall Sheep (*Ovis dalli*) or, in some cases only as medium to large mammal. The ecological setting suggests these remaining bones probably represent caribou rather than sheep. Eight bones were identified as the remains of small mammals or birds, although the skeletal element could not be determined. It should be noted that the specific small mammal or bird bones were calcined suggesting they represent the remains of subsistence activities. The small mammal or bird bones were only associated with the middle component at the site.

Although long bone, rib, vertebra, skull and tooth fragments were collected, foot bones--metapodial, tarsal, phalanx and sesamoid fragments--comprise the highest percentage of identified elements. The higher incidence of these bones can be accounted for either by their actual higher frequency in the assemblage or by processing practices in which bones were less fragmented than other skeletal elements. The foot bones are fragmentary, and therefore difficult to use in determining the Minimum Number of Individuals represented at the site. The fact that both completely ossified and unossified (epiphyses) articular surfaces of certain phalanges were present does suggest that at least two individual caribou can be identified in the faunal assemblage. Unlike the small mammal or bird bones, the foot fragments of caribou were recovered from all three of the components at TLM 184.

Upper Component:

The uppermost component is concentrated in the unit 2/3 contact. A total 585 lithic specimens were recovered from this contact. In addition, 150 lithic specimens were found in unit 2 and 377 lithic specimens were found in unit 3. Most of the artifactual material recovered from the unit 2/3 contact were unmodified flakes. Seven different kinds of lithic raw materials were identified in the collection of flakes. Three tools were also recovered from this contact. The tools recovered from the unit 2/3 contact are listed in Table 3.40 and include, one modified flake (UA83-110-306), and two microblades (UA83-110-264 and 490). Three bifacial rejuvenation flakes were also recovered from this contact (UA83-110-332, 356, 105). Two radiocarbon samples composed of large charcoal chunks were submitted from the unit 2/3 contact and produced dates of 840 ± 60 years: A.D. 1110 (Beta 7692) and 1060 ± 70 years: A.D. 890 (Beta 7693).

Middle Component:

When the artifacts from all test squares are combined and ordered by strata, all strata contain artifacts and there is no sterile stratum separating the upper and middle components. A number of factors indicate that these two components are separated between the Devil and Watana tephras. For instance, five of the ten test squares which have a high concentration of artifacts in units 3 and above are sterile or contain one flake in units 4a, 4b and 4c. Also in test squares which contain artifacts in all units there tends to be a change in the relative frequency of raw material type. In the upper units (2, 2/3 and 3) both argillite and white chert tend to predominate as the most frequent kinds of lithic raw materials. In units 4a, 4b and 4c the frequency of argillite occurrence drops considerably. Another phenomenon which indicates the component separation at the unit 3 and unit 4 contact is the highly significant change in the amount of faunal material recovered. For instance, in units 2, 2/3 and 3 the total of bone fragments collected is significantly less than the bone fragments collected from units 4a, 4b and 4c (Table 3.37).

The contact between units 3 and 4 produced a total of 334 lithic artifacts (Table 3.38, Figure 3.92). With further analysis these artifacts may be ascribed to the upper or middle component. No tools or tool fragments were recovered from this contact zone, only flakes and bone fragments. A total of 608 lithic artifacts were collected from the strata representing the middle component. Eleven lithic tools were recovered from these strata and include five microblades (UA83-110-421, 422, 478, 525, 776), one scraper fragment (UA83-110-402), two unifacial tools (UA83-110-799, 800), one hammerstone (UA83-110-792), one modified flake (UA83-110-802) and one biface fragment (UA83-110-808) (Figure 3.105). Of the 608 chipped stone artifacts found in these strata, unit 4b produced only 4 artifacts.

Lower Component:

The lower component was concentrated in unit 5a (paleosol above Oshetna tephra). Again this component was not isolated with a sterile stratum but the decline in artifact frequency at the upper and lower contact suggests unit 5a is a separate period of occupation. The upper contact of the paleosol with the Devil tephra produced 8 artifacts. The lower contact, with the Oshetna tephra, also produced only 8 artifacts. The paleosol produced 97 artifacts, 95 of which were manufactured from argillite (Table 3.38, Figure 3.93). None of the artifacts recovered from this lower component were tools or tool fragments. The artifacts from this component tend to cluster near the eastern end of the site. Table 3.39 provides a summary of the artifact distribution for each test square and each unit. Two radiocarbon samples were submitted for unit 5a. These samples produced dates of 5230 ± 140 years: 3280 B.C. (Beta 965) and 6480 ± 370: 4530 B.C. (Beta 962).

The lower component is bounded above by the Watana tephra and below by the Oshetna tephra. These two tephra are separate volcanic ash falls which are usually free of non-ash deposits such as aeolion sands, glacial gravels and rocks, unless reworked by natural agents including man. In three of the test squares large boulders approximately 40 cm by 30 cm by 20 cm in size were found above the Oshetna tephra. Each of the boulders were intrusive into the upper units but were resting directly on the top of the Oshetna tephra. Because of their stratigraphic position, they appear to be associated with the paleosol above the Oshetna tephra and as such, with the lowest cultural component. The three boulders form an arc which, if complete, would produce a circle approximately four meters in diameter. More testing is needed before a reliable interpretation can be made of the "boulder feature" but it may represent the remains of some kind of wind screen or tent ring. If this were the case, it would be highly significant because there are few known features from this time period.

Evaluation:

TLM 184 is located on a knoll approximately 2.2 km north of the confluence of Watana Creek and Susitna River. It is approximately 1.3 km west of Watana Creek in a region of spruce bogs. Only one other knoll of similar size is located in the immediate vicinity, approximately 200 m to the east. At first inspection, the site location appears to have little significance but it is the highest land feature within a 3 km radius. A clear view of the surrounding lowland to the south, west and north is available for nearly 10 kms. The high frequency of large mammal bones, mostly caribou, is evidence to support assumptions of caribou consumption by prehistoric inhabitants at the site. Whether caribou were procured, processed or consumed directly at the site still remains to be tested archeologically. Artifact classes recovered from the site imply traditional sorts of activities associated with a hunting and gathering economy based on large mammal consumption. For instance, the scrapers recovered from the site may indicate hide working activities. The unifacial tools and retouched flakes which have acute edge angles suggest butchering and skinning activities. Other sorts of maintenance work associated with woodworking is indicated by the recovery of the adze preform (UA83-110-478).

Whatever the site may have "functioned" as through time can only be interpreted with more archeological exploration. The reasons prehistoric populations had for visiting the site must have been important because the site was occupied on at least three different occasions. Any of these three occasions may have constituted a single episode for a short period of time (one year or one season) or they may represent many very short-term camps over the course of a few hundred years. The site was continually visited and must have continually supplied access to resources for the people who occupied it over the course of 5000 years.

Another important aspect of this site is its relationship to TLM 215. TLM 215 is located approximately 200 m to the east on another knoll of similar size. It contains two archeological components which correspond to two of the three archeological components found at TLM 184. Both sites contain the same upper component. That is, the site was occupied at the same time during their last prehistoric use. No radiocarbon dates were determined for the lower component at TLM 215 but stratigraphically, this component corresponds to the first occupation of TLM 184. The close proximity of these two sites and their contemporaneity during at least two time periods require further investigation.

Six radiocarbon samples were analyzed from TLM 184. Table 3.41 summarizes the information derived from these samples. The samples taken from the Upper and Lower Watana tephra produced ages which were not expected given the stratigraphic position of the units dated. The Lower Watana tephra (4c) contained a great amount of soil, burned bone and unburned bone. The volume of charcoal found in this sample was too small for an adequate date even after being combined with additional samples taken from the 4c matrix. As a result, the sample was run as a bulk sample and produced an age of 1060 ± 70 years: A.D. 890 (Beta-7843). Given the stratigraphic position of the sample, this date probably does not represent the age of the Lower Watana tephra. This assumption is further supported by the tephrochronological analysis which conclusively identified this unit as the Lower Watana tephra, which has been dated at a much earlier age. The sample taken from the Upper Watana tephra (4a) produced an age of 3920 ± 100 years: 1970 B.C. (Beta-7842). This sample may not represent organic material initially deposited in the Upper Watana tephra because of stratigraphic disturbance. This sample was collected from the southwest quad of N98/E106.

The stratigraphy was truncated in this quad by the intrusion of glacial pebbles. Therefore, it is reasonable to expect that the radiocarbon sample represents redistributed material and may not be dating the Upper Watana tephra.

At this time, TLM 184 represents one of the most valuable sites for obtaining information on the little known time period between ca. A.D. 500 and 1500 B.C. in Interior Alaska. In addition, because it is a multicomponent site, a good understanding of the relationship between earlier and later occupations may be obtained by further testing at TLM 184.

TABLE 3.36

ARTIFACT SUMMARY, TLM 184.

856	Argillite flakes (light brown to greenish brown)
228	Dark gray to black chert flakes
1048	White chert flakes
5	Red chert flakes
9	Brown chert flakes
12	Chalcedony flakes
1	Shale flake
19	Basalt flakes
38	Obsidian flakes
2	Quartzite flakes
1	Modified flake, argillite (UA83-110-780)
1	Modified flake, red chert (UA83-110-306)
3	Modified flakes, white chert (UA83-110-449, 575, 578)
1	Modified flake, gray chert (UA83-110-802)
1	Modified flake, basalt (UA83-110-329)
1	Split pebble, gray chert (UA83-110-104)
1	Rejuvenation flake, gray chert (UA83-110-332)
1	Rejuvenation flake, argillite (UA83-110-505)
1	Rejuvenation flake, obsidian (UA83-110-356)
1	Scraper fragment, gray chert (UA83-110-402)
1	End scraper, white chert (UA83-110-448)
1	Biface tip, white chert (UA83-110-451)
1	Biface fragment, white chert (UA83-110-808)
1	Projectile point base, white chert (UA83-110-549)
1	Microblade, argillite (UA83-110-525)
4	Microblades, white chert (UA83-110-264, 373, 478, 421)
2	Microblades, gray chert (UA83-110-490, 776)
2	Microblades, brown chert (UA83-110-422, 615)
2	Unifacial tools, white chert (UA83-110-799, 800)
1	Adze preform (UA83-110-474)
1	Hammerstone (UA83-110-792)

TABLE 3.36 (Continued)

Faunal Material	
26,689	Bone fragments

TABLE 3.37

FAUNAL MATERIAL, TLM 184.

Unit	Test Square	Description
4a/5a	N98/E106	1 Fragment, heavily burned, medium-large mammal
4a	N99/E101	1 Possible proximal tibia fragment, lightly burned, caribou (<u>Rangifer tarandus</u>) or Dall sheep (<u>Ovis dalli</u>)
		53 Fragments, calcined, medium-large mammal
4c		1 Distal fragment proximal phalanx, calcined, caribou (<u>Rangifer tarandus</u>)
		1 Proximal fragment distal phalanx, calcined, caribou (<u>Rangifer tarandus</u>)
		1 Distal fragment phalanx, calcined, caribou (<u>Rangifer tarandus</u>) or Dall sheep (<u>Ovis dalli</u>)
		4 Long bone fragments, calcined, medium-large mammal
		203 Fragments, calcined, medium-large mammal
2/3	N99/E103	1 Possible proximal fragment of proximal vestigial phalanx, calcined, caribou (<u>Rangifer tarandus</u>)
		21 Fragments, calcined, medium-large mammal
4/4c		2 Fragments, lightly burned, medium-large mammal
		3 Fragments, calcined, medium-large mammal

TABLE 3.37 (Continued)

Unit	Test Square	Description
4c		1 Possible distal phalanx fragment, calcined, caribou (_Rangifer tarandus_) or Dall sheep (_Ovis dalli_) 1 Distal fragment proximal phalanx, calcined, caribou (_Rangifer tarandus_) 1 Cuneiform fragment, calcined, caribou (_Rangifer tarandus_) 4 Long bone fragments, calcined, medium-large mammal 42 Fragments, calcined, medium-large mammal
3/4a	N100/E99	1 Long bone fragment, calcined, large mammal
2	N100/E102	1 Proximal fragment distal phalanx, calcined, caribou (_Rangifer tarandus_) 1 Left naviculo-cuboid fragment, heavily burned, caribou (_Rangifer tarandus_) 1 Long bone fragment, calcined, medium-large mammal 4 Fragments, calcined, medium-large mammal
2/3		10 Fragments, calcined, medium-large mammals
3		11 Fragments, calcined, medium-large mammals

TABLE 3.37 (Continued)

Unit	Test Square	Description
3/4a		1 Possible proximal fragment proximal phalanx, calcined, caribou (*Rangifer tarandus*) or Dall sheep (*Ovis dalli*)
		1 Distal fragment middle phalanx, calcined, caribou (*Rangifer tarandus*)
		1 Proximal fragment distal phalanx, calcined, caribou (*Rangifer tarandus*) or Dall sheep (*Ovis dalli*)
		2 Proximal fragments distal phalanges, calcined, caribou (*Rangifer tarandus*)
		1 Distal metapodial fragment, calcined, caribou (*Rangifer tarandus*)
		1 Sesamoid fragment, calcined, caribou (*Rangifer tarandus*) or Dall sheep (*Ovis dalli*)
		1 Possible transverse process of lumbar vertebra, calcined, caribou (*Rangifer tarandus*) or Dall sheep (Ovis dalli)
		1 Possible facet fragment of lumbar vertebra, calcined probably caribou (*Rangifer tarandus*)
		1 Tooth fragment, calcined, probably caribou (*Rangifer tarandus*)
		15 Long bone fragments, calcined, medium-large mammal
		22 Fragments, heavily burned, medium-large mammal
		5352 Fragments, calcined, medium-large mammal

TABLE 3.37 (Continued)

Unit	Test Square	Description
4a		1 Proximal fragment proximal phalanx, calcined, caribou (Rangifer tarandus)
		4 Distal fragments proximal phalanges, calcined, caribou (Rangifer tarandus)
		1 Proximal fragment middle phalanx, calcined, caribou (Rangifer tarandus)
		1 Distal fragment middle phalanx, calcined, caribou (Rangifer tarandus)
		1 Proximal epiphysis fragment middle phalanx, calcined, caribou (Rangifer tarandus)
		1 Proximal fragment distal phalanx, calcined, caribou (Rangifer tarandus)
		1 Proximal phalanx fragment, calcined, caribou (Rangifer tarandus)
		2 Distal phalanx fragments, calcined, caribou (Rangifer tarandus)
		1 Proximal phalanx fragment, calcined, caribou (Rangifer tarandus) or Dall sheep (Ovis dalli)
		2 Distal metapodial fragments, calcined caribou (Rangifer tarandus)
		1 Possible distal metapodial fragment, calcined, caribou (Rangifer tarandus) or Dall sheep (Ovis dalli)
		2 Sesamoids, calcined, caribou (Rangifer tarandus)
		1 Possible sesamoid, calcined, medium-large mammal

TABLE 3.37 (Continued)

Unit	Test Square	Description
4a (continued)		
		1 Right naviculo-cuboid fragment, heavily burned, caribou (Rangifer tarandus)
		1 Astragalus fragment, calcined, caribou (Rangifer tarandus) or Dall sheep (Ovis dalli)
		1 Possible proximal tibia epiphysis, calcined, probably caribou (Rangifer tarandus)
		1 Possible spinous process fragment of thoracic vertebra, calcined, caribou (Rangifer tarandus)
		1 Antler fragment, calcined, caribou (Rangifer tarandus)
		1 Possible basicranial fragment, calcined, medium-large mammal
		50 Long bone fragments, calcined, medium-large mammal
		3 Fragments, charred, taxon unknown
		3 Fragments, calcined, small mammal
		39 Fragments, heavily burned, medium-large mammal
		6521 Fragments, calcined, medium-large mammal
4b		12 Fragments, calcined, medium-large mammal

TABLE 3.37 (Continued)

Unit	Test Square	Description
4c		8 Distal fragments proximal phalanges, calcined, caribou (Rangifer tarandus)
		1 Proximal epiphysis proximal phalanx, calcined, caribou (Rangifer tarandus)
		1 Proximal fragment proximal vestigial phalanx, calcined, caribou (Rangifer tarandus)
		1 Proximal phalanx fragment, calcined, caribou (Rangifer tarandus) or Dall sheep (Ovis dalli)
		6 Proximal fragments middle phalanges, calcined, caribou (Rangifer tarandus)
		1 Distal fragment middle phalanx, calcined, caribou (Rangifer tarandus)
		1 Proximal fragment middle vestigial phalanx, calcined, caribou (Rangifer tarandus)
		4 Proximal fragments distal phalanges, calcined, caribou (Rangifer tarandus)
		1 Distal phalanx, calcined, caribou (Rangifer tarandus)
		1 Proximal fragment distal vestigial phalanx, calcined, caribou (Rangifer tarandus)
		1 Distal phalanx fragment, calcined, caribou (Rangifer tarandus) or Dall sheep (Ovis dalli)
		2 Proximal fragments middle or distal phalanges, calcined, probably caribou (Rangifer tarandus)

TABLE 3.37 (Continued)

Unit	Test Square	Description
4c (continued)		
		4 Distal phalanx fragments, calcined, caribou (_Rangifer tarandus_) or Dall sheep (_Ovis dalli_)
		7 Sesamoids, calcined, caribou (_Rangifer tarandus_)
		7 Sesamoid fragments, calcined, caribou (_Rangifer tarandus_)
		2 Sesamoid fragments, calcined, caribou (_Rangifer tarandus_) or Dall sheep (_Ovis dalli_)
		2 Metapodial shaft fragments calcined, probably caribou (_Rangifer tarandus_)
		3 Distal metapodial fragments, calcined, caribou (_Rangifer tarandus_)
		1 Distal metapodial fragment, calcined, caribou (_Rangifer tarandus_) or Dall sheep (_Ovis dalli_)
		1 Right naviculo-cuboid fragment, calcined, caribou (_Rangifer tarandus_)
		1 Calcaneous fragment, calcined, caribou (_Rangifer tarandus_) or Dall sheep (_Ovis dalli_)
		1 Possible proximal tibia fragment, calcined, large mammal
		2 Lumbar vertebra facet fragments, calcined, probably caribou (_Rangifer tarandus_)
		1 Vertebral fragment, calcined, medium-large mammal

TABLE 3.37 (Continued)

Unit	Test Square	Description
4c (continued)		
		2 Rib fragments, calcined, medium-large mammal
		1 Rib fragment, calcined, small mammal
		1 Possible skull fragment, calcined, medium-large mammal
		1 Tooth fragment, calcined, caribou (<u>Rangifer tarandus</u>)
		1 Tooth fragment, calcined, caribou (<u>Rangifer tarandus</u>) or Dall sheep (<u>Ovis dalli</u>)
		1 Tooth fragment, heavily burned, medium-large mammal
		2 Long bone fragments, calcined, small mammal or bird
		112 Long bone fragments, calcined, medium-large mammal
		1 Fragment, calcined small mammal or bird
		2 Fragments, calcined, small-medium mammal
		17 Fragments, heavily burned, medium-large mammal
		13,722 Fragments, calcined, medium-large mammal
4b/5a		1 Long bone fragment, calcined, medium-large mammal

TABLE 3.37 (Continued)

Unit	Test Square	Description
5a/5b		3 Long bone fragments, calcined, medium-large mammal
		24 Fragments, calcined, medium-large mammal
	Test Pit 2	24 Fragments, heavily burned, medium-large mammal
		287 Fragments, calcined, medium-large mammal

TABLE 3.38

ARTIFACT SUMMARY BY STRATIGRAPHIC UNIT, TLM 184.

Contact between organic mat and decayed organic horizon (unit 1/2)	5 Argillite flakes 18 White chert flakes 1 Brown chert flake 1 Dark gray to black obsidian flake 1 Basalt flake
Within decayed organic horizon (unit 2)	28 Dark gray to black chert flakes 2 Argillite flakes 104 White chert flakes 3 Brown chert flakes 3 Dark gray to black obsidian flakes 2 Chalcedony flakes 1 Basalt flake 1 Modified basalt flake (UA83-110-329) 3 Modified white chert flakes (UA83-110-575, 578, 449) 1 Projectile point base (UA83-110-549) 1 Biface tip (UA83-110-451) 1 End scraper, white chert (UA83-110-448)
Contact between decayed organic mat and Devil tephra (unit 2/3)	43 Dark gray to black chert flakes 257 Argillite flakes 262 White chert flakes 1 Quartzite flake 7 Dark gray to black obsidian flakes 6 Chalcedony flakes 3 Basalt flakes 1 Rejuvenation flake, gray chert (UA83-110-332) 1 Modified flake, red chert (UA83-110-306)

TABLE 3.38 (Continued)

	1 Rejuvenation flake, obsidian (UA83-110-356) 1 Rejuvenation flake, argillite (UA83-110-505) 1 Microblade, gray chert (UA83-110-490) 1 Microblade, white chert (UA83-110-264)
Within Devil tephra (unit 3)	24 Dark gray to black chert flakes 190 Argillite flakes 150 White chert flakes 2 Red chert flakes 2 Chalcedony flakes 1 Brown chert flake 6 Dark gray to black obsidian flakes 1 Microblade fragment, white chert (UA83-110-373) 1 Microblade fragment, brown chert (UA83-110-615)
Contact between Devil tephra and oxidized Watana tephra (unit 3/4a)	15 Dark gray to black chert flakes 137 Argillite flakes 174 White chert flakes 2 Red chert flakes 1 Brown chert flake 4 Dark gray to black obsidian flakes 1 Basalt flake
Within oxidized Watana tephra (unit 4a)	29 Dark gray to black chert flakes 135 Argillite flakes 123 White chert flakes 1 Red chert flake 1 Brown chert flake

TABLE 3.38 (Continued)

	2 Dark gray to black obsidian flakes 1 Chalcedony flake 5 Basalt flakes 1 Scraper fragment, gray chert (UA83-110-402) 1 Microblade, argillite (UA83-110-525)
Within light brown colored Watana tephra (unit 4b)	2 Argillite flakes 1 White chert flake 1 Dark gray to black obsidian flake
Within brown cultural horizon (unit 4c)	83 Dark gray to black chert flakes 2 Argillite flakes 198 White chert flakes 1 Quartzite flake 8 Dark gray to black obsidian flake 1 Chalcedony flake 4 Basalt flakes 2 Microblades, white chert (UA83-110-421, 478) 1 Microblade, gray chert (UA83-110-776) 1 Hammerstone (UA83-110-792) 2 Unifacial tools, gray chert (UA83-110-799, 800) 1 Modified flake, gray chert (UA83-110-802) 1 Biface fragment, white chert (UA83-110-808)

TABLE 3.38 (Continued)

Mixed Watana tephras (unit 4a, b, c)	5 Dark gray to black chert flakes 16 Argillite flakes 16 White chert flakes 4 Dark gray to black obsidian flakes 1 Microblade fragment, brown chert (UA83-110-422)
Contact between Watana tephra and paleosol (unit 4/5a)	4 Argillite flakes 1 White chert flake 1 Brown chert flake 1 Modified flake, argillite (UA83-110-780) 1 Adze preform (UA83-110-474)
Contact between Watana tephra and Oshetna tephra (unit 4/5b)	2 Argillite flakes
Paleosol above Oshetna tephra (unit 5a)	1 Dark gray to black chert flake 95 Argillite flakes 1 White chert flake
Contact between paleosol and Oshetna tephra (unit 5a/5b)	3 Argillite flakes 2 Dark gray to black obsidian flakes 3 Basalt flakes
Within Oshetna tephra (unit 5b)	6 Argillite 1 Brown chert flake 1 Basalt flake 1 Split pebble, brown chert (UA83-110-104)
Within oxidized drift (unit 6a)	1 Shale flake

TABLE 3.39

ARTIFACT SUMMARY BY TEST SQUARE AND STRATIGRAPHIC UNIT, TLM 184.

Test Square	Unit	Description
N99/E99	1/2 Contact between organic mat and decayed organic horizon	1 Argillite flake
	2 Within decayed organic horizon	1 Basalt flake 1 Modified flake, basalt (UA83-110-329)
	2/3 Contact between decayed organic horizon and Devil tephra	1 Argillite flake 1 White chert flake 1 Dark gray to black obsidian flake 1 Rejuvenation flake, gray chert (UA83-110-332) 1 Modified flake, red chert (UA83-110-306)
	3 Within Devil tephra	6 Argillite flakes 1 White chert flake 2 Dark gray to black obsidian flakes
	3/4a Contact between Devil tephra and oxidized Watana tephra	5 Argillite flakes
	4a Within oxidized Watana tephra	1 Basalt flake

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4b Within light brown colored Watana tephra	2 Argillite flakes 1 Dark gray to black obsidian flake
	4c Within brown cultural horizon	None
	4a, b, c Mixed Watana tephras	3 Argillite flakes
	4/5a Contact between Watana tephra and paleosol	None
	4/5b Contact between Watana tephra and Oshetna tephra	2 Argillite flakes
	5a Paleosol above Oshetna tephra	3 Argillite flakes
	5a, b Contact between paleosol and Oshetna tephra	1 Argillite flake
	5b Within Oshetna tephra	5 Argillite flakes
	6a Within oxidized drift	None
N98/E100	1/2 Contact between organic mat and decayed organic horizon	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	2 Within decayed organic horizon	1 Dark gray to black chert flake 1 Argillite flake
	2/3 Contact between decayed organic horizon and Devil tephra	14 Dark gray to black chert flakes 2 Argillite flakes 1 Quartzite flake
	3 Within Devil tephra	1 Dark gray to black chert flake 9 Argillite flakes 1 White chert flake 2 Red chert flakes
	3/4a Contact between Devil tephra and oxidized Watana tephra	3 Argillite flakes 1 White chert flake
	4a Within oxidized Watana tephra	5 Argillite flakes
	4b Within light brown colored Watana tephra	None
	4c Within brown cultural horizon	None
	4a, b, c Mixed Watana tephras	3 Dark gray to black obsidian flakes

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4/5a Contact between Watana tephra and paleosol	1 Modified flake, argillite (UA83-110-780)
	4/5b Contact between Watana tephra and Oshetna tephra	None
	5a Paleosol above Oshetna tephra	None
	5a, b Contact between paleosol and Oshetna tephra	2 Argillite flakes
	5b Within Oshetna tephra	1 Brown chert flake
N99/E101	1/2 Contact between organic mat and decayed organic horizon	2 White chert flakes 1 Dark gray to black obsidian flake
	2 Within decayed organic horizon	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	2/3 Contact between decayed organic horizon and Devil tephra	7 Argillite flakes 16 White chert flakes 5 Dark gray to black obsidian flakes 1 Rejuvenation flake, obsidian (UA83-110-356)
	3 Within Devil tephra	6 Dark gray to black chert flakes 5 Argillite flakes 37 White chert flakes 2 Chalcedony flakes 3 Dark gray to black obsidian flakes 1 Microblade fragment, white chert (UA83-110-373)
	3/4a Contact between Devil tephra and oxidized Watana tephra	2 Dark gray to black chert flakes 10 White chert flakes 1 Red chert flake 3 Dark gray to black obsidian flakes
	4a Within oxidized Watana tephra	3 Dark gray to black chert flakes 1 Argillite flake 7 White chert flakes

TABLE 3.39 (Continued)

Test Square	Unit	Description
		1 Red chert flake 1 Scraper fragment, gray chert (UA83-110-402)
	4b Within light brown colored Watana tephra	None
	4c Within brown cultural horizon	1 Dark gray to black chert flake 7 White chert flakes 2 Dark gray to black obsidian flakes 1 Microblade fragment, white chert (UA83-110-421)
	4a, b, c Mixed Watana tephras	1 Microblade fragment, brown chert (UA83-110-422)
	4/5a Contact between Watana tephra and paleosol	1 Brown chert flake
	4/5b Contact between Watana tephra and Oshetna tephra	None
	5a Paleosol above Oshetna tephra	1 Dark gray to black chert flake 1 White chert flake

TABLE 3.39 (Continued)

Test Square	Unit	Description
	5a, b Contact between paleosol and Oshetna tephra	None
	5b Within Oshetna tephra	None
	6a Within oxidized drift	1 Shale flake
N98/E102	1/2 Contact between organic mat and decayed organic horizon	None
	2 Within decayed organic horizon	1 Dark gray to black chert flake 15 White chert flakes 1 Dark gray to black obsidian flake
	2/3 Contact between decayed organic horizon and Devil tephra	2 Dark gray to black chert flakes 3 White chert flakes 1 Dark gray to black obsidian flake 1 Chancelony flake
	3 Within Devil tephra	6 White chert flakes
	3/4a Contact between Devil tephra and oxidized Watana tephra	27 Argillite flakes 4 White chert flakes

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4a Within oxidized Watana tephra	None
	4b Within light brown colored Watana tephra	None
	4c Within brown cultural horizon	None
	4a, b, c Mixed Watana tephras	None
	4/5a Contact between Watana tephra and paleosol	None
	4/5b Contact between Watana tephra and Oshetna tephra	None
	5a Paleosol above Oshetna tephra	None
	5a, b Contact between paleosol and Oshetna tephra	1 Dark gray to black obsidian flake

TABLE 3.39 (Continued)

Test Square	Unit	Description
	5b Within Oshetna tephra	1 Basalt flake 1 Split pebble, brown chert (UA83-110-104)
N100/E102	1/2 Contact between organic mat and decayed organic horizon	None
	2 Within decayed organic horizon	24 Dark gray to black chert flakes 1 Argillite flake 85 White chert flakes 3 Brown chert flakes 2 Dark gray to black obsidian flakes 2 Chalcedony flakes 1 Projectile point base (UA83-110-549) 2 Modified flakes, white chert (UA83-110-575, 578)
	2/3 Contact between decayed organic horizon and Devil tephra	1 Dark gray to black chert flake
	3 Within Devil tephra	88 White chert flakes 14 Dark gray to black chert flakes 4 Argillite flakes

TABLE 3.39 (Continued)

Test Square	Unit	Description
		1 Microblade fragment, brown chert (UA83-110-615) 1 Brown chert flake 1 Dark gray to black obsidian flake
	3/4a Contact between Devil tephra and oxidized Watana tephra	12 Dark gray to black chert flakes 2 Argillite flakes 159 White chert flakes 1 Red chert flake 1 Brown chert flake 1 Dark gray to black obsidian flake 1 Basalt flake
	4a Within oxidized Watana tephra	26 Dark gray to black chert flakes 116 White chert flakes 1 Brown chert flake 2 Dark gray to black obsidian flakes 1 Chalcedony flake 4 Basalt flakes
	4b Within light brown colored Watana tephra	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4c Within brown cultural horizon	80 Dark gray to black chert flakes 1 Argillite flake 177 White chert flakes 1 Quartzite flake 6 Dark gray to black obsidian flakes 4 Basalt flakes 1 Hammerstove (UA83-110-792) 1 Microblade, gray chert (UA83-110-776) 2 Unifacial tools, white chert (UA83-110-799, 800) 1 Modified flake, gray chert (UA83-110-802) 1 Biface fragment, white chert (UA83-110-808)
	4a, b, c Mixed Watana tephras	None
	4/5a Contact between Watana tephra and Oshetna tephra	None
	4/5b Contact between Watana tephra and Oshetna tephra	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	5a Paleosol above Oshetna tephra	None
	5a, b Contact between paleosol and Oshetna tephra	1 Dark gray to black obsidian flake 3 Basalt flakes
	5b Within Oshetna tephra	None
	6a Within oxidized drift	None
N99/E103	1/2 Contact between organic mat and decayed organic horizon	14 White chert flakes 1 Brown chert flake 1 Basalt flake
	2 Within decayed organic horizon	2 Dark gray to black chert flakes 4 White chert flakes 1 End scraper, white chert (UA83-110-448) 1 Modified flake, white chert (UA83-110-449) 1 Biface tip, white chert (UA83-110-451)

TABLE 3.39 (Continued)

Test Square	Unit	Description
	2/3 Contact between decayed organic horizon and Devil tephra	20 Dark gray to black chert flakes 2 Argillite flakes 223 White chert flakes 4 Chalcedony flakes
	3 Within Devil tephra	8 White chert flakes
	3/4a Contact between Devil tephra and oxidized Watana tephra	None
	4a Within oxidized Watana tephra	None
	4b Within light brown colored Watana tephra	1 White chert flake
	4c Within brown cultural horizon	2 Dark gray to black chert flakes 1 Argillite flake 14 White chert flakes 1 Chalcedony flake 1 Microblade fragment, white chert (UA83-110-478)

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4a, b, c Mixed Watana tephras	5 Dark gray to black chert flakes 1 Argillite flake 16 White chert flakes 1 Dark gray to black obsidian flakes
	4/5a Contact between Watana tephra and paleosol	1 White chert flake 1 Adze preform (US83-110-474)
	4/5b Contact between Watana tephra and Oshetna tephra	None
	5a Paleosol above Oshetna tephra	None
	5a, b Contact between paleosol and Oshetna tephra	None
	5b Within Oshetna tephra	None
	6a Within oxidized drift	None
N98/E104	1/2 Contact between organic mat and decayed organic horizon	2 White chert flakes

TABLE 3.39 (Continued)

Test Square	Unit	Description
	2 Within decayed organic horizon	None
	2/3 Contact between decayed organic horizon and Devil tephra	1 Dark gray to black chert flake 58 Argillite flakes 8 White chert flakes
	3 Within Devil tephra	1 Dark gray to black chert flake 50 Argillite flakes
	3/4a Contact between Devil tephra and oxidized Watana tephra	1 Dark gray to black chert flake 29 Argillite flakes
	4a Within oxidized Watana tephra	None
	4b Within light brown colored Watana tephra	None
	4c Within brown cultural horizon	None
	4a, b, c Mixed Watana tephras	11 Argillite flakes
	4/5a Contact between Watana tephra and paleosol	3 Argillite flakes

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4/5b Contact between Watana tephra and Oshetna tephra	None
	5a Paleosol above Oshetna tephra	None
	5a, b Contact between paleosol and Oshetna tephra	None
	5b Within Oshetna tephra	None
	6a Within oxidized drift	None
N99/E105	1/2 Contact between organic mat and decayed organic horizon	4 Argillite flakes
	2 Within decayed organic horizon	None
	2/3 Contact between decayed organic horizon and Devil tephra	19 Argillite flakes 6 White chert flakes 1 Microblade fragment, gray chert (UA83-110-490)
	3 Within Devil tephra	27 Argillite flakes

TABLE 3.39 (Continued)

Test Square	Unit	Description
	3/4a Contact between Devil tephra and oxidized Watana tephra	None
	4a Within oxidized Watana tephra	None
	4b Within light brown colored Watana tephra	None
	4c Within brown cultural horizon	None
	4a, b, c Mixed Watana tephra	1 Argillite flake
	4/5a Contact between Watana tephra and paleosol	None
	4/5b Contact between Watana tephra and Oshetna tephra	None
	5a Paleosol above Oshetna tephra	5 Argillite flakes
	5a, b Contact between Paleosol and Oshetna tephra	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	5b Within Oshetna tephra	None
	6a Within oxidized drift	None
N98/E106	1/2 Contact between organic mat and decayed organic horizon	None
	2 Within decayed organic horizon	None
	2/3 Contact between decayed organic horizon and Devil tephra	5 Dark gray to black chert flakes 74 Argillite flakes 5 White chert flakes 3 Basalt flakes 1 Microblade, white chert (UA83-110-264)
	3 Within Devil tephra	41 Argillite flakes 9 White chert flakes
	3/4a Contact between Devil tephra and oxidized Watana tephra	None
	4a Within oxidized Watana tephra	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4b Within light brown colored Watana tephra	None
	4c Within brown cultural horizon	None
	4a, b, c Mixed Watana tephra	None
	4/5a Contact between Watana tephra and paleosol	1 Argillite flake
	4/5b Contact between Watana tephra and Oshetna tephra	None
	5a Paleosol above Oshetna tephra	1 Argillite flake
	5b Within Oshetna tephra	1 Argillite flake
	6a Within oxidized drift	None
N99/E107	1/2 Contact between organic mat and decayed organic horizon	None
	2 Within decayed organic horizon	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	2/3 Contact between decayed organic horizon and Devil tephra	94 Argillite flakes 1 Chalcedony flake 1 Rejuvenation flake, argillite (UA83-110-505)
	3 Within Devil tephra	5 Dark gray to black chert flakes 48 Argillite flakes
	3/4a Contact between Devil tephra and oxidized Watana tephra	71 Argillite flakes
	4a Within oxidized Watana tephra	129 Argillite flakes 1 Microblade, argillite (UA83-110-525)
	4b Within light brown colored Watana tephra	None
	4c Within brown cultural horizon	None
	4a, b, c Mixed Watana tephra	None
	4/5a Contact between Watana tephra and paleosol	None

TABLE 3.39 (Continued)

Test Square	Unit	Description
	4/5a Contact between Watana tephra and Oshetna tephra	None
	5a Within paleosol above Oshetna tephra	86 Argillite flakes
	5b Within Oshetna tephra	None
	6a Within oxidized drift	None

TABLE 3.40

TOOLS AND TOOL FRAGMENTS BY STRATIGRAPHIC UNIT, TLM 184.

Unit	Test Square	Description
2 Within decayed organic horizon	N99/E99	UA83-110-329. Modified flake, basalt: Flake terminates with a hinge fracture. Fine retouch is present along lateral edges and probably represents use wear. The platform and bulb of force are still intact.
	N100/E102	UA83-110-549. Projectile point base, white chert: Point appears to have been broken during manufacture. Only one face has fine diagonal flake scars. It appears to be a side notched point with shallow notches and a convex base (Figure 3.105e).
		UA83-110-575. Modified flake, white chert: Platform and bulb of force are intact. There is only a slight amount of retouch located near the platform which is probably use wear related.
		UA83-110-578. Modified flake, white chert: Flake is rectangular in shape with a concave ventral surface. Retouch occurs on two very straight edges. No platform or bulb of force.

TABLE 3.40 (Continued)

Unit	Test Square	Description
	N99/E103	UA83-110-448. End scraper, white chert: Triangular in shape with dorsal chipping on all three edges. All edges meet to form sharp tangs or ears. The ventral surface is smooth and slightly convex with a single flake scar which contains a hinge fracture (Figure 3.105j).
		UA83-110-449. Modified flake, white chert: Very fine retouch occurs on lateral edges and is probably use wear related. Bulb of force is intact but platform has hinged off.
		UA83-110-451. Biface tip, white chert: Distal end of flake which has been bifacially worked. Both dorsal and ventral sides have flakes removed from edges only. No chipping is carried across the entire length of biface (Figure 3.105d).
2/3 Contact between organic horizon and Devil tephra	N99/E99	UA83-110-306. Modified flake, red chert: Flake is circular in shape and has evidence of post depositional thermal alteration. It is fire reddened and contains thermal spalls. Retouch along lateral edges is probably intentional modification and use wear. No platform is intact.

TABLE 3.40 (Continued)

Unit	Test Square	Description
	N99/E105	UA83-110-490. Microblade fragment, gray chert: A possible microblade proximal end. Platform is flat and at a right angle to the ventral surface. The dorsal surface has in irregular flake pattern.
	N98/E106	UA83-110-264. Microblade, white chert: A very small platform is still intact. The dorsal surface contains a single medial ridge and the distal end is twisted and plunging.
3 Within Devil tephra	N99/E101	UA83-110-373. Microblade fragment, white chert: Proximal end of microblade. The platform is intact and flat, at a right angle to the ventral surface. The dorsal surface is irregular with no medial ridges.
	N100/E102	UA83-110-615. Microblade fragment, brown chert: Medial section of a possible microblade. Contains a smooth ventral surface. The dorsal surface has a single medial ridge.
4a Within Oxidized Watana Tephra	N99/E101	UA83-110-402. Scraper fragment, gray chert: Dorsal retouch is present on only one edge of scraper. The working edge is characteristic of a scraper blade but somewhat acute. Only a fragment of the scraper remains (Figure 3.105k).

TABLE 3.40 (Continued)

Unit	Test Square	Description
	N99/E107	UA83-110-525. Microblade, argillite: Almost complete microblade with distal end missing. The platform is flat and is at a right angle to the ventral surface. The dorsal surface has a single medial ridge and contains some cortex (Figure 3.105g).
4c Within Brown Cultural Horizon	N99/E101	UA83-110-421. Microblade fragment, white chert: Proximal end of a possible micro-blade fragment. The platform is very small, smooth and beveled. The ventral surface is smooth and the dorsal surface has no medial ridge.
	N100/E102	UA83-110-792. Hammerstone: River worn pebble with battering on three places. Made of fine grained brown quartzite.
		UA83-110-776. Microblade, gray chert: The dorsal surface contains a single medial ridge. It is almost complete but is missing the distal tip. Contains a flat platform which is at a right angle to the ventral surface (Figure 3.105i).
		UA83-110-799. Unifacial tool, white chert: Large flake tool, rectangular in shape with intentional retouch on the dorsal surface. The ventral surface is smooth with no retouch (Figure 3.105b).

TABLE 3.40 (Continued)

Unit	Test Square	Description
		UA83-110-800. Unifacial tool, white chert: One face looks very much like a projectile point tip with diagonal and parallel flakes taken halfway across the dorsal surface. The ventral surface is not flaked (Figure 3.105c).
		UA83-110-802. Modified flake, gray chert: Chunky flake with cortex on the dorsal surface. Some retouch occurs along one edge and is probably use wear.
		UA83-110-808. Biface fragment, white chert: Medial section of a biface from near the base. The fragment appears to be contracting toward the base but is interrupted by a basal fracture (Figure 3.105f).
	N99/E103	UA83-110-478. Microblade fragment, white chert: Proximal end of a possible microblade. The platform is intact and flat across the top at a right angle to the ventral surface.
7a, b, c Mixed Watana tephra	N99/E101	UA83-110-422. Microblade fragment, brown chert: Only the proximal section is remaining. The dorsal ridge contains a single medial ridge. The platform is flat and at an 80° angle to the ventral surface (Figure 3.105h).

TABLE 3.40 (Continued)

Unit	Test Square	Description
4/5a Contact Between the Watana Tephra and Paleosol	N98/E100	UA83-110-780. Modified flake, argillite: The flake is rectangular in shape with one modified edge. The retouch appears to be use wear. All other edges have been fractured at right angles. The ventral side is smooth and the dorsal side contains flake scars.
	N99/E103	UA83-110-474. Adze preform: A river worn basalt pebble which is flat and oval in shape. Crude chipping occurs on both lateral margins. It appears to be in the early stages of adze/celt reduction sequence. There is no evidence of pecking or grinding (Figure 3.105a).
5b Within Oshetna tephra	N98/E102	UA83-110-104. Split pebble, brown chert: Shows evidence of two impact areas. Initially split and subsequently had a flake removed. The pebble is rounded and contains cortex over more than half the surface area.

4 - IMPACT ON HISTORIC AND ARCHEOLOGICAL SITES: A PRELIMINARY EVALUATION OF ALL SITES KNOWN TO DATE 1980-1983

4.1 - Introduction

This impact analysis is preliminary and may require reevaluation depending on revised engineering plans regarding reservoir height, borrow area selection, data concerning expected erosion along the margins of the impoundments, proposed recreational development, and other project changes that may affect cultural resources.

The magnitude and nature of adverse impact the Susitna Hydroelectric Project will have on specific sites or groups of sites depends on the location of these cultural resources in relation to areas affected by construction, operation, maintenance, overall land modification, and ancillary development of the Susitna Hydroelectric Project and the type of activities which will occur in these areas (Tables 4.1-4.5). Three major types of adverse impact to cultural resources have been defined; they are 1) direct, 2) indirect, and 3) potential. Sites directly impacted are those sites which are immediately affected by ground disturbing activities associated with preconstruction, construction or operation of the project. Areas where direct impact would occur include, but are not limited to, the Watana and Devil Canyon Reservoirs, Watana and Devil Canyon construction areas including construction camps and villages, borrow areas, transportation corridors including access roads and railroads, recreation areas, transmission lines, areas associated with geotechnical testing and any other area subject to subsurface disturbing activities associated with the Susitna Hydroelectric Project.

Indirect impact will result from adverse effects that are secondary but clearly brought about by the project and which would not occur if the project were not undertaken. Indirect impact will occur on sites affected by altered and/or accelerated erosional processes associated with filling and regulating of the reservoirs. Secondary land modifications such as altered drainage, accelerated erosional processes and slope failure associated with dam and spillway construction, greater access to remote areas, increased number of project personnel in the area during and after construction, activities related to project maintenance, and erosion of the impoundment margins resulting from fluctuating water levels, all pose very real, though secondary, threats to cultural resources.

Potential impact is connected with ancillary development which can be predicted to occur as a result of the project, but which depends on other variables which are unknown at this time. Such variables include future engineering modifications, future recreational use of the area, and increased development along access corridors and impoundment margins. Although the specific impact agent(s) that could impact sites in the potential category are not presently known, impact to sites or groups of sites can be predicted to occur as a result of expected recreational use of the area and increased development associated with this activity. Potential impact could become direct impact, indirect impact or no impact depending on how these activities affect the areas containing cultural resources. When the location of all project facilities and recreational developments are known and the cultural resource inventory complete, it will then be possible to identify sites in the potential category that will receive direct, indirect, or no impact.

4.2 - Significance

To comply with federal regulations, impact analysis of cultural resources is legally required for those sites either listed in, or recommended as eligible for, the National Register of Historic Places. The eligibility of a site, or group of sites, for inclusion in the National Register of Historic Places is based on the significance of the site(s). Therefore it is first necessary to determine if the site or group of sites is significant. Determination of significance is based on National Register of Historic Places criteria which define significance "in American history, architecture, archeology, and culture present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association and/or that are associated with events that have made significant contributions to the broad patterns of history; or are associated with the lives of persons significant in our past; or that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or have yielded or may likely yield information important in prehistory and history" (36 CFR 60).

A determination of significance must be based on adequate information. For this project a program of reconnaissance level testing was implemented to locate and document sites. In order to generate sufficient data on which to base an evaluation of significance, systematic testing was employed. In most cases (a notable exception being historic cabins), systematic testing is necessary to assess significance. The 26 sites systematically tested all provided sufficient data to address the question of significance and 25 of these sites appear to be eligible for inclusion in the National Register (Table 5.1 Chapter 5).

Significance itself is a relative term which is used in an historic context dependent on the current state of knowledge, method and theory employed, and research questions asked. New techniques and methods have enabled archeologists to collect new and different types of data which allow new questions to be formulated and addressed. Although National Register Criteria are subject to ongoing modification, significance pertaining to archeological sites generally emphasizes research potential, site integrity and/or public appreciation.

Although all the sites located as a result of this study are related geographically and many temporally, the exact relationships await further study. Most of the sites were found associated with one or more of four tephra units which provide limiting dates in a restricted geographic context and provide a unique and scientifically important opportunity to construct the first cultural chronology for the Upper Susitna

River Valley. Armed with this information it is possible to state that all sites (with the exception of TLM 033) found to date in the study area are likely significant and collectively hold the potential for defining the prehistory for this region of Alaska and, therefore, may be eligible for inclusion in the National Register of Historic Places. Based on all data collected to date, a preliminary cultural chronology has been developed (Dixon et al. 1982a:2-4).

Significance must be assessed on adequate data. Only 26 of the sites located and documented during the four field seasons have been systematically tested (due to time and budgetary constraints) and adequate data are available from these sites. Evaluation of specific site significance for the remaining sites must await systematic testing. However, because a majority of the sites occur in relation to four tephra units, it is possible to consider the collective significance of all sites for delineating the prehistory and history of the Upper Susitna River Valley. From this perspective, all sites located to date (with the exception of TLM 033) appear to qualify for the National Register of Historic Places.

Given this level of significance it may be appropriate to nominate these sites to the National Register as an archeological district because of the unique opportunity the known sites in this area (as well as yet undiscovered sites) have for addressing questions concerning the prehistory of a large portion of Interior Alaska which is presently not well defined. If a nomination of this type is made, it should be done in concert with the State Historic Preservation Officer.

The impact of the Susitna Hydroelectric Project on the 245 sites documented to date is considered in Tables 4.1-4.5. The type of impact (direct, indirect, potential or no impact) are discussed by the following areas: Watana Reservoir, Watana Construction Area, Devil Canyon Reservoir, Devil Canyon Construction Area, Borrow Area, Access Route, Access Route Borrow Area, Railroad, Recreation Area, Transmission Route, Geotechnical and Other areas associated with the project.

Impact analysis, using the information submitted in the FERC license application including supplemental information, indicates that of the 245 sites documented 109 will be directly impacted, 28 indirectly impacted, 133 could potentially be impacted and it appears that 10 will not be impacted. Information regarding proposed access road borrow areas was taken from two maps prepared by R&M Consultants dated 9/1/84 (R&M number 252210).

Thirty-five sites in the impact tables occur in two areas and are listed under each appropriate area. For sites in borrow areas not actually selected as borrow sources, and for recreation sites that may be ammended to avoid cultural resources it will be necessary to reevaluate impact.

Although 133 sites in the potential category are presently located outside expected direct and indirect areas, they could be impacted depending on future developments associated with the Susitna Hydroelectric Project. At present, they should be avoided. However, if and when it is determined that these sites will be either directly or indirectly impacted, it will then be necessary to mitigate this impact. When final plans for the project, including recreational activities, are available it may then be possible to determine specific sites which will not be impacted by the Susitna Hydroelectric Project.

TABLE 4.1

IMPACT OF THE SUSITNA HYDROELECTRIC PROJECT ON KNOWN CULTURAL RESOURCES 1980 - 1983: DIRECT IMPACT

Watana Reservoir	Watana Construction Area	Devil Canyon Reservoir	Devil Canyon Construction Area	Borrow Area	Access Route	Access Route Borrow Area	Railroad	Recreation Area	Transmission Route	Geotechnical	Other
TLM 026	TLM 016	TLM 022		TLM 022	TLM 153	TLM 103		TLM 009	TLM 018		
TLM 033	TLM 017	TLM 023		TLM 023		TLM 106		TLM 101			
TLM 039	TLM 018	TLM 024		TLM 024		TLM 107		TLM 103			
TLM 040	TLM 137	TLM 027		TLM 054		TLM 108					
TLM 042	TLM 165	TLM 029		TLM 055		TLM 109					
TLM 043	TLM 166	TLM 030		TLM 056		TLM 110					
TLM 048	TLM 167	TLM 034		TLM 078		TLM 111					
TLM 050	TLM 172	TLM 178		TLM 081		TLM 113					
TLM 058				TLM 083		TLM 114					
TLM 059				TLM 084		TLM 153					
TLM 060				TLM 085		HEA 181					
TLM 061				TLM 086		HEA 182					
TLM 062				TLM 087		HEA 211					
TLM 063				TLM 088							
TLM 064				TLM 089							
TLM 065				TLM 090							
TLM 072				TLM 091							
TLM 073				TLM 094							
TLM 075				TLM 095							
TLM 077				TLM 096							
TLM 079				TLM 097							

TABLE 4.1 (Continued)

Watana Reservoir	Watana Construction Area	Devil Canyon Reservoir	Devil Canyon Construction Area	Borrow Area	Access Route	Access Route Borrow Area	Railroad	Recreation Area	Transmission Route	Geotechnical	Other
TLM 080				TLM 176							
TLM 102				TLM 188							
TLM 104				TLM 201							
TLM 115				TLM 202							
TLM 119				TLM 203							
TLM 126				TLM 209							
TLM 169				TLM 210							
TLM 171				TLM 211							
TLM 173				TLM 212							
TLM 174				TLM 213							
TLM 175				TLM 214							
TLM 177											
TLM 182											
TLM 184											
TLM 194											
TLM 196											
TLM 199											
TLM 200											
TLM 204											
TLM 206											
TLM 207											
TLM 215											

TABLE 4.2

IMPACT OF THE SUSITNA HYDROELECTRIC PROJECT ON KNOWN CULTURAL RESOURCES 1980 - 1983: INDIRECT IMPACT

Watana Reservoir	Watana Construction Area	Devil Canyon Reservoir	Devil Canyon Construction Area	Borrow Area	Access Route	Access Route Borrow Area	Railroad	Recreation Area	Transmission Route	Geotechnical	Other
	TLM 160				TLM 109			TLM 071			TLM 015
	TLM 164				TLM 110			HEA 174			TLM 038
	TLM 180				TLM 111			HEA 176			TLM 120
	TLM 192				TLM 113						TLM 121
											TLM 122*
											TLM 123*
											TLM 124*
											TLM 125*
											TLM 127*
											TLM 129*
											TLM 130
											TLM 131*
											TLM 132*
											TLM 133
											TLM 143
											TLM 145
											HEA 175

*Associated with areas of projected slope instability.

TABLE 4.3

IMPACT OF THE SUSITNA HYDROELECTRIC PROJECT ON KNOWN CULTURAL RESOURCES 1980 - 1983: POTENTIAL IMPACT

Watana Reservoir	Watana Construction Area	Devil Canyon Reservoir	Devil Canyon Construction Area	Borrow Area	Access Route	Access Route Borrow Area	Railroad	Recreation Area	Transmission Route	Geotechnical	Other
	TLM 051				TLM 112		TLM 005	TLM 021	TLM 112		TLM 020
					TLM 116		TLM 006	TLM 054	HEA 012		TLM 025
					TLM 117			TLM 055	HEA 026		TLM 028
					TLM 155			TLM 056	HEA 030		TLM 031
					TLM 168			TLM 057	HEA 035		TLM 032
					TLM 214			TLM 078	HEA 037		TLM 035
					HEA 180			TLM 081	HEA 038		TLM 036
					HEA 181			TLM 083	HEA 080		TLM 037
					HEA 182			TLM 084	HEA 083		TLM 041
								TLM 085	HEA 119		TLM 044
								TLM 086	HEA 128		TLM 045
								TLM 087	HEA 137		TLM 046
								TLM 088	HEA 139		TLM 047
								TLM 089	HEA 141		TLM 049
								TLM 090	HEA 142		TLM 052
								TLM 091	HEA 143		TLM 053
								TLM 094	HEA 210		TLM 066
								TLM 095	FAI 141		TLM 069
								TLM 096	FAI 142		TLM 074
								TLM 097	FAI 144		TLM 076
								TLM 098	FAI 145		TLM 092

TABLE 4.3 (Continued)

Watana Reservoir	Watana Construction Area	Devil Canyon Reservoir	Devil Canyon Construction Area	Borrow Area	Access Route	Access Route Borrow Area	Railroad	Recreation Area	Transmission Route	Geotechnical	Other
								TLM 099	FAI 213		TLM 093
								TLM 100	FAI 214		TLM 118
								TLM 105	ANC 052		TLM 128
								TLM 116	ANC 077		TLM 134
								TLM 117	ANC 079		TLM 135
								TLM 179	ANC 082		TLM 136
								TLM 182	ANC 096		TLM 138
								TLM 186	ANC 099		TLM 139
								TLM 187	ANC 118		TLM 140
								TLM 208	ANC 245		TLM 141
								HEA 183	TYO 014		TLM 142
								HEA 184			TLM 144
								HEA 185			TLM 146
											TLM 147
											TLM 148
											TLM 149
											TLM 150
											TLM 151
											TLM 152
											TLM 154
											TLM 159
											TLM 170
											TLM 181

TABLE 4.3 (Continued)

Watana Reservoir	Watana Construction Area	Devil Canyon Reservoir	Devil Canyon Construction Area	Borrow Area	Access Route	Access Route Borrow Area	Railroad	Recreation Area	Transmission Route	Geotechnical	Other
											TLM 183
											TLM 185
											TLM 189
											TLM 190
											TLM 191
											TLM 193
											TLM 195
											TLM 197
											TLM 198
											TLM 218
											TLM 219

TABLE 4.4

IMPACT OF THE SUSITNA HYDROELECTRIC PROJECT ON KNOWN CULTURAL RESOURCES 1980 - 1983: NO IMPACT

Watana Reservoir	Watana Construction Area	Devil Canyon Reservoir	Devil Canyon Construction Area	Borrow Area	Access Route	Access Route Borrow Area	Railroad	Recreation Area	Transmission Route	Geotechnical	Other
										TLM 068	TLM 007
										TLM 070	TLM 067
										TLM 082	TLM 205
										HEA 177	HEA 186
										HEA 178	
										HEA 179	

TABLE 4.5

IMPACT SUMMARY BY LOCATION

	WR	WC	DR	DC	B	AR	ARB	RR	RA Phase 1	RA Phase 2	RA Phase 3	RA Phase 4	RA Phase 5	T H-F	T W-A	T W-I	GT	O	TOTAL
DI	43	8	8	0	32	1	13	0	1	0	0	2	0	0	0	1	0	0	109
II	0	4	0	0	0	4	0	0	0	3	0	0	0	0	0	0	0	17	28
PI	0	1	0	0	0	9	0	2	0	34	0	0	0	22	9	1	0	55	133
NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4	10
TOTAL	43	13	8	0	32	14	13	2	1	37	0	2	0	22	9	2	6	76	

WR - Watana Reservoir
WC - Watana Construction Area
DR - Devil Canyon Reservoir
DC - Devil Canyon Construction Area
B - Borrow Area
AR - Access Route

RR - Railroad
RA - Recreation Area
T - Transmission Route
H-F - Healy to Fairbanks
W-A - Willow to Anchorage
W-I - Watana Dam to Intertie

GT - Geotechnical Area
O - Other Portion of the Study Area
DI - Direct Impact
II - Indirect Impact
PI - Potential Impact
NI - No Impact

Note: The 35 sites impacted by two areas are listed under each area. For sites in borrow areas not actually selected as borrow sources it will be necessary to re-evaluate impact.

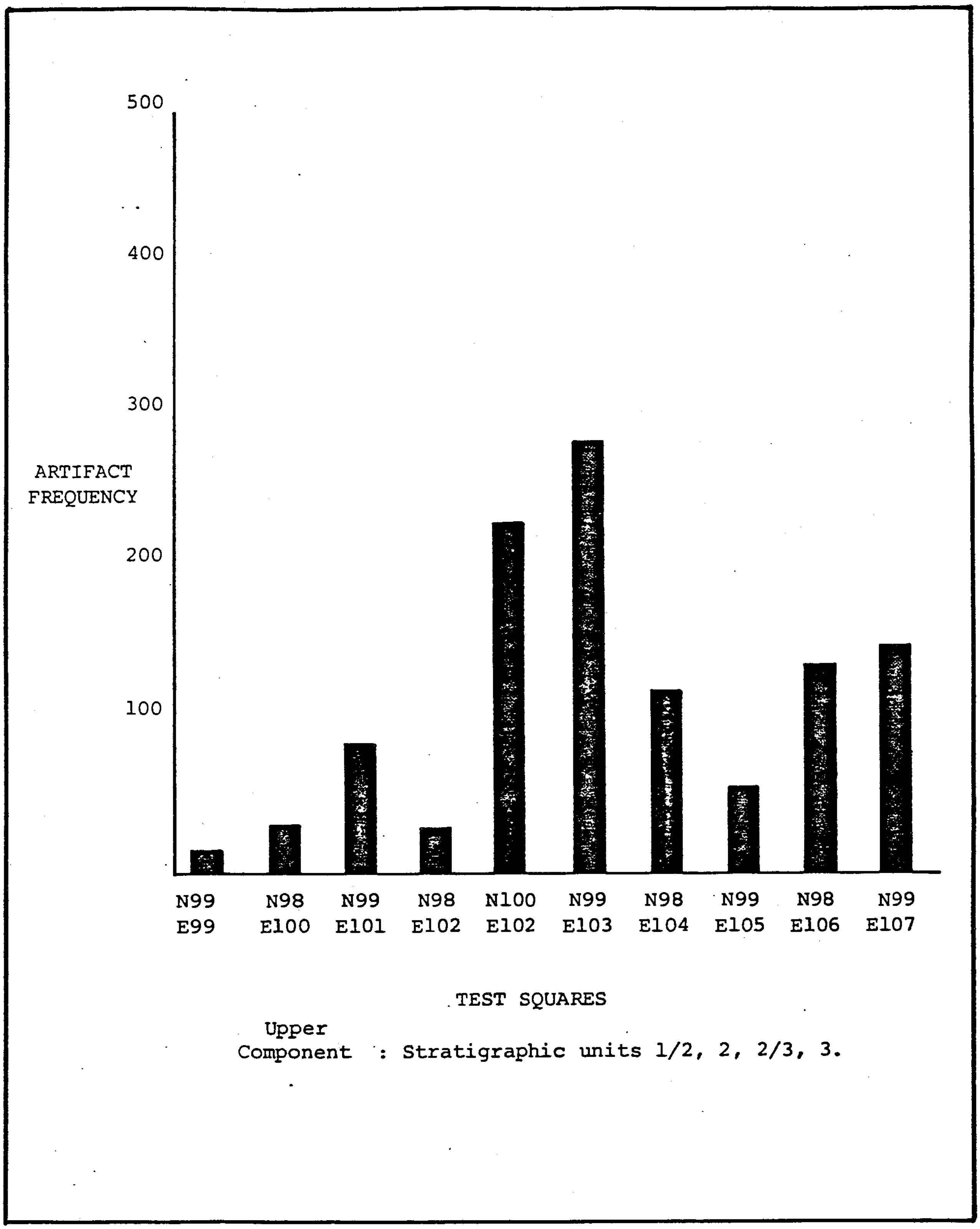


Figure 3.91. Artifact Frequency by Test Square, Upper Component, TLM 184.

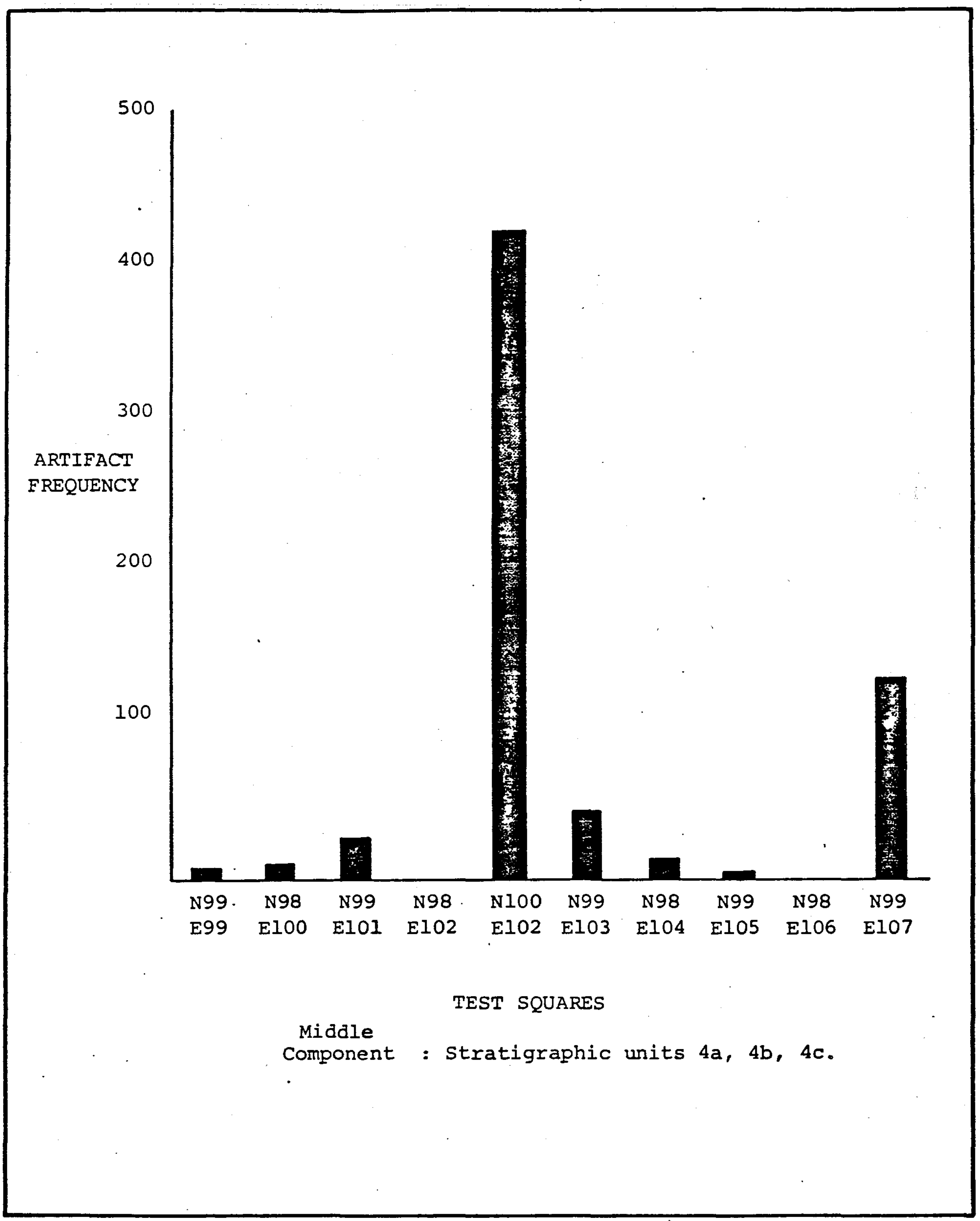


Figure 3.92. Artifact Frequency by Test Square, Middle Component, TLM 184.

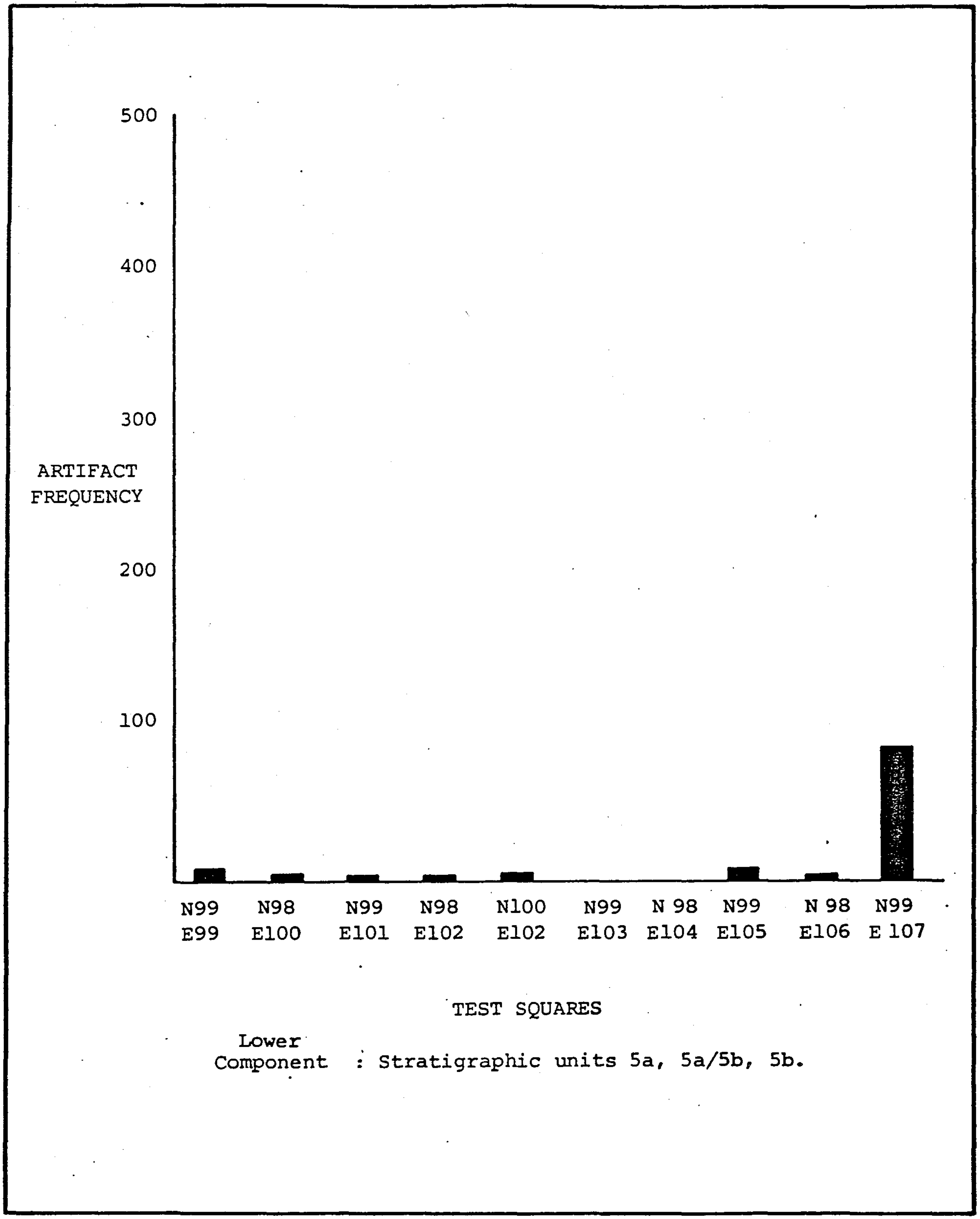


Figure 3.93. Artifact Frequency by Test Square, Lower Component, TLM 184.

TABLE 3.41

RADIOCARBON DATES FOR TLM 184.

Sample	Material Dated	Stratigraphic Unit	14C Years B.P.	Comments
UA83-110-945 Beta-7692	Large charcoal chunks	Decayed organic horizon (unit 2)	840±60	Large sample with no contamination, associated with artifacts.
UA83-110-949 Beta-7693	Large pieces of charcoal	02/Devil tephra contact (unit 2/3)	1060±70	Large sample with no contamination, associated with artifacts.
UA83-110-962 Beta-7694	Small pieces of charcoal	Paleosol above Oshetna (unit 5a)	6490±370	Sample was collected from one quad of the stratigraphic unit as small pieces and flecks.
UA83-110-965 Beta-7695	Small pieces of charcoal	Paleosol above Oshetna (unit 5a)	5230±140	Sample collected from small isolated area within stratigraphic unit. Soil matrix was included with charcoal.

TABLE 3.41 (continued)

Sample	Material Dated	Stratigraphic Unit	14C Years B.P.	Comments
UA83-110-955 Beta-7842	Small pieces of charcoal	Upper Watana tephra (unit 4a)	3920±100	Sample collected from Watana tephra
UA83-110-961 Beta-7843	Very small pieces of charcoal and carbon stained matrix	Lower Watana (unit 4c)	1060±70	This was a bulk sample composed of charcoal, flakes and soil matrix. Root penetration into the matrix probably caused contamination.

Systematic Testing TLM 215--Watana Depression Site

Location: See Section 3.2

Testing:

A single 1 m by 1 m test square was excavated during the systematic testing phase at TLM 215. Since discovery of this site was made very late in the field season, the site map using only a compass and tape measure. The square, arbitrarily designated as N100/E50, was superimposed over 3 previous shovel tests in an oval-shaped depression near the north end of the knoll summit (Figure 3.94). Situated at the southeastern edge of the depression, the square was placed so as to maximize information about this feature by intersecting both its base and berm.

Discussion:

During reconnaissance testing, the knoll on which TLM 215 is located was extensively shovel tested. One of the shovel tests placed in a depression on the knoll produced 2 small calcined bone fragments. Expansion of subsurface testing in this vicinity during the systematic phase revealed an additional 44 bone fragments and 41 basalt and argillite flakes. Table 3.45 summarizes the artifacts collected at the site, and Table 3.44 describes the faunal assemblage.

Ten major stratigraphic units, 3 of which had discernable substrata, were identified at TLM 215 (Figure 3.95, Table 3.42). The distribution of artifacts and faunal remains within these units is depicted in Table 3.43. The bimodal distribution of this material and association with 2 culturally-deposited strata separated by a stringer of Devil tephra suggest that 2 components are represented at the site. The upper component has been radiocarbon dated at 1580 ± 110 years: A.D. 370 (Beta-7846). In addition to lithics and bone, 2 features were identified. The oval-shaped surface depression was designated as Feature 1; a subsurface rock feature was designated as Feature 2.

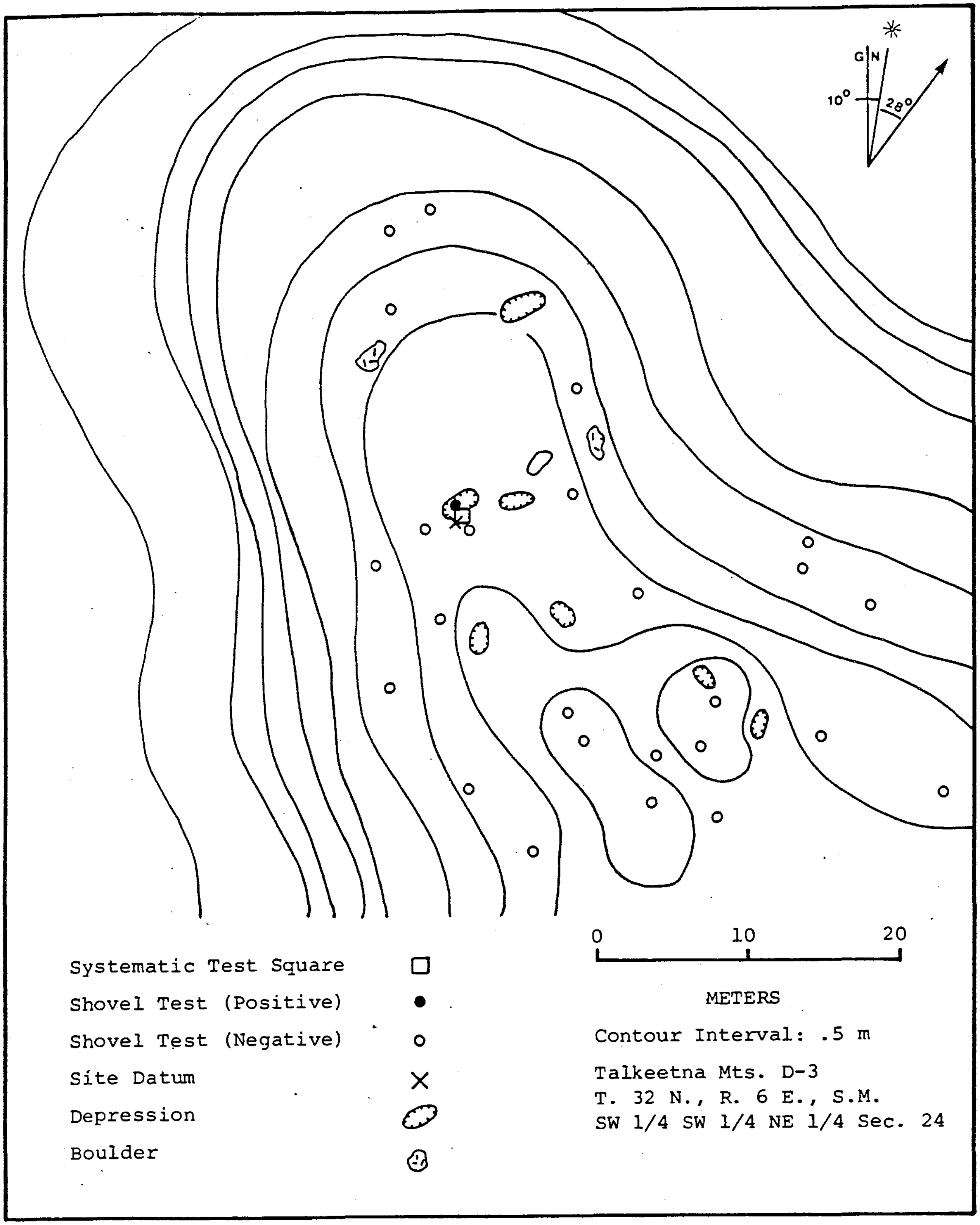
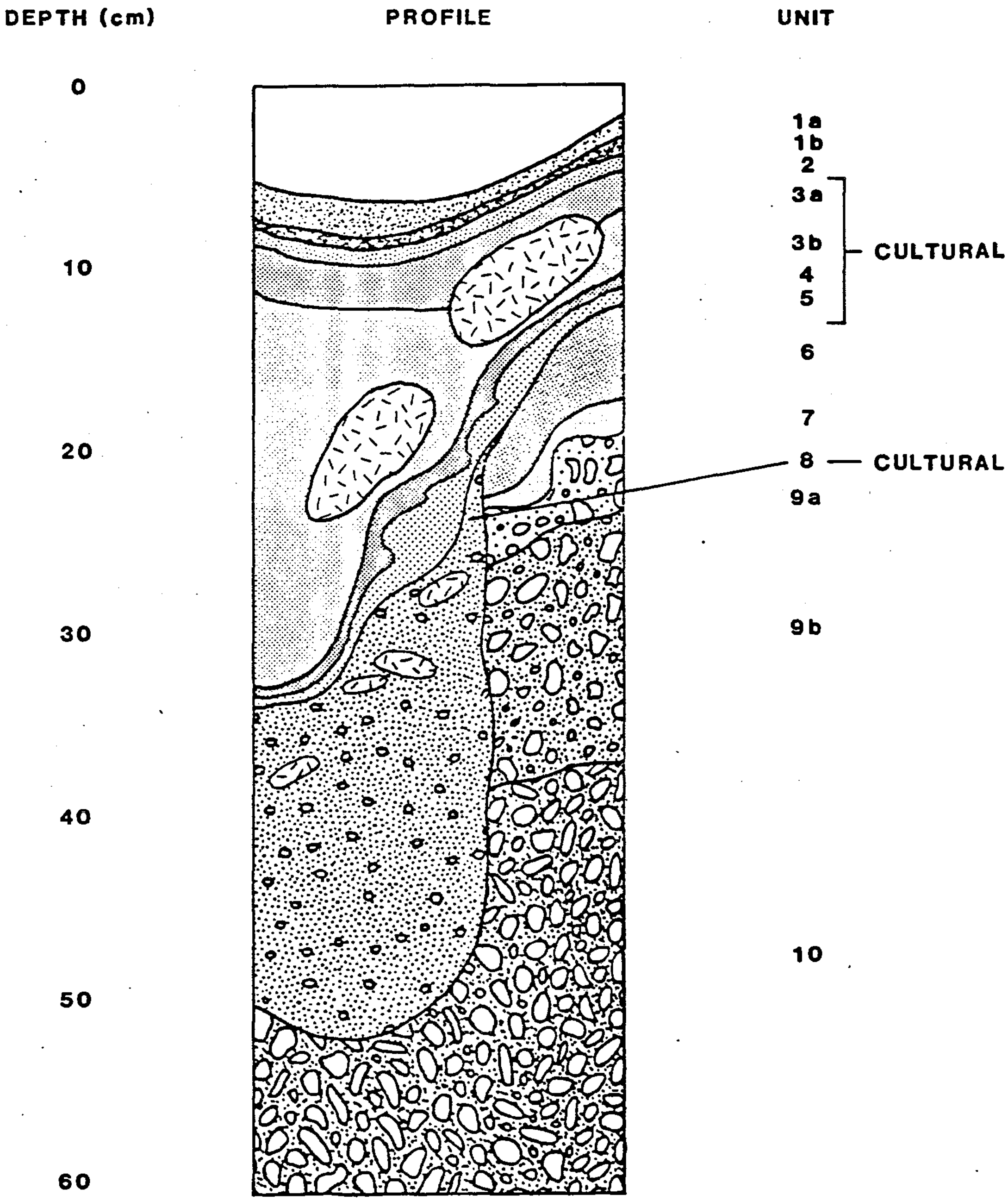


Figure 3.94. Site Map TLM 215.



Unit 3

UA83-227-25: 1580 ± 110 years: 370 A.D. (Beta-7846)

Figure 3.95. Composite Profile TLM 215.

TABLE 3.42

SOIL/SEDIMENT DESCRIPTIONS FOR COMPOSITE PROFILE, TLM 215.

Unit	Description
1a	Surface organic layer: Sandy silt with roots and plant material from lowbush cranberry and lichen; very dark grayish brown (10 YR 3/2). Varies in thickness from 1-3 cm. Lower boundary is not always clear and grades into underlying unit. Continuous except on north wall where truncated by previous shovel tests.
1b	Fine sandy silt humus layer; black (2.5 YR 2.5/0). Very thin, ranging between 1-2 cm in thickness. Upper and lower boundaries often indistinct and grade into adjacent units. Continuous except on north wall where truncated by previous shovel tests. Basalt flakes occur at contact with underlying unit.
2	Sandy silt with gravel and pebbles, stained with decomposed organic material; gray (10 YR 5/1) to dark gray (10 YR 4/1). Thin layer ranging from 1-6 cm, but generally only 1-2 cm in thickness. Clear boundary with underlying unit. Continuous except on north wall where truncated by previous shovel tests. Basalt flakes occur in unit.
3a	Sandy silt with gravels, pebbles and some cobbles; yellowish brown (10 YR 5/8). Overburden drift. Poorly sorted. Ranges from 2-6 cm in thickness. Lower boundary indistinct and grades into underlying unit. Oxidized. Continuous throughout square.

TABLE 3.42 (Continued)

Unit	Description
3b	Sandy silt with gravels, pebbles and some cobbles; olive (5 Y 5/4). Overburden drift. Poorly sorted. Cobbles reach a maximum dimension of 46 cm and are generally associated with Feature 2 on the north and west walls. Unit ranges from 4-26 cm in thickness on north and west walls, 2-8 cm on south and east walls. Indistinct boundary with upper unit; distinct but undulating contact with underlying unit. Root penetration. Continuous throughout square. Isolated charred wood fragments recovered. Basalt and argillite flakes and bone fragments occur in unit and at contact with underlying unit. One radiocarbon date: 1580 ± 110 years B.P.
4	Fine silt with decomposed organic material and charcoal staining; black (7.5 YR 2/0). Very thin, less than 1 cm in thickness. Discontinuous, at times appearing as lenses. Basalt flakes occur at the contact of this unit and the units above and below.
5	Very fine-grained silt; very pale brown (10 YR 7/3). Varies in thickness from .5 - 5.5 cm. Undulating contact with lower unit, with mixing of these units on south wall. Tephra (Devil). Discontinuous; appearing at times as lenses. An isolated basalt flake and a bone fragment occurred in unit, with a higher concentration of flakes and bone occurring at the contact with overburden drift (unit 3b).

TABLE 3.42 (Continued)

Unit	Description
6	Very fine-grained silt; strong brown (7.5 YR 5/8) to light yellowish brown (10 YR 6/4). Varies in thickness from .5 - 18.5 cm. Undulating contacts with adjacent units. Mixing occurs with overlying unit on south wall, upper boundary is generally gradational. Tephra (Watana). Discontinuous on east wall; appearing as lenses on north and west walls. Root penetration. Basalt flakes occur at contact with unit above.
7	Fine-grained silt; gray (10 YR 5/1). Ranges from .5 - 9 cm in thickness. Undulating, but generally clear contacts with adjacent units. Tephra (Oshetna). Discontinuous, frequently occurring as lenses. Root penetration.
8	Sand and silt mixed with gravel and pebbles; strong brown (7.5 YR 5/8) to olive (5 Y 5/3) with mottled appearance. Varies from 4-30 cm in thickness. Generally unclear contacts with adjacent units. Glacial drift mixed with tephra: Cultural fill. Restricted distribution on north and west walls. Root penetration.
9a	Sand and silt mixed with pebbles and cobbles; strong brown (7.5 YR 5/8). Varies from 2 - 12.5 cm in thickness. Lower boundary unclear and grades into underlying unit. Glacial drift; oxidized poorly sorted. Truncated on the north and west walls by presence of cultural fill (unit 8).

TABLE 3.42 (Continued)

Unit	Description
9b	Sand and silt mixed with pebbles and cobbles; olive (5 Y 5/3). Thickness varies from 1-14 cm on north and west walls to 9-30 cm on south and east walls. Upper boundary unclear and grades into overlying unit. Glacial drift poorly sorted. Truncated on north and west walls by presence of cultural fill (unit 8).
10	Sand mixed with large percentage of pebbles and cobbles; grayish brown (2.5 Y 5/2). Glacial drift. Poorly sorted. Upper boundary ranges from clear to indistinct with overlying units. Excavation into this unit defined limit of excavation. Truncated on north and west walls by presence of cultural fill (unit 8).

The stratigraphy at TLM 215 is best illustrated as a series of events, both natural and cultural. Briefly, the events consisted of the deposition of glacial drift (units 9a, 9b, and 10), and a series of volcanic ash falls in the form of the Oshetna (unit 7), Watana (unit 6), and Devil (unit 5) tephras, which serve to chronologically bracket two cultural pit-filling events. At some point in time after the deposition of Watana tephra, but prior to the Devil tephra fall, the first cultural event, excavation of a pit through the tephras into the drift, took place. The pit was then utilized, and presumably shortly thereafter, refilled with drift that had become mixed with tephras and other sediments. This cultural fill (unit 8) was easily discernable on the north and west walls of the test square by its mottled appearance and outline on the wall profiles. The outline of unit 8 clearly shows that the glacial drift and both the Oshetna and Watana tephras had been truncated during the pit refilling event, and thus indicates that the event occurred in post-Watana times. The Devil tephra, however, forms a continuous band above unit 8, demonstrating that unit 8 was already in place before the site was mantled with this volcanic ash.

Following the Devil tephra fall and the formation of a thin, black organic layer (unit 4), another cultural event took place. Once again, the shallow depression appears to have been utilized and later covered over by a 4-10 cm thick unit of overburden drift (unit 3a, b). Whereas the lower cultural fill (unit 8) is only apparent on the north and west walls, the overburden drift appears on all 4 walls of the test square. The stratigraphic sequence is capped by 3-4 cm of organics, soil, and sediment designated at units 1a, 1b, and 2.

A discrete lens, not appearing on wall profiles, was identified between units 8 and 10 in the northwest quadrant of the square. It was composed of brown (7.5 YR 5/2) fine-grained silt, organic matter, and brown lithic material resembling siltstone. Also included in this lens were charcoal flecks and bone fragments.

The upper component at TLM 215 can be correlated with the contact between the overburden drift and Devil tephra, where cultural material included 23 basalt flakes, 5 argillite flakes, plus 25 calcined bone fragments. Although sparse lithics and bone did occur in strata above and below this contact, their occurrence can probably be attributed to vertical displacement resulting from frost heaving. Size range of the flakes, none of which had been modified, varied from less than 1 cm to 5 cm in diameter. The largest piece of lithic debitage was a basalt cortex flake. The bone fragments averaged approximately 1.5 cm in diameter, and with the exception of 1 fragment possibly from a small mammal, could all be identified as belonging to medium-large mammals. One of the 2 long bone fragments had distinct cut marks along its lateral margin.

The lower component is evident in the northwest quadrant of the test square lying in the deepest portion of the depression (Feature 1). Stratigraphically it is located in a discrete lens of silt mixed with organics at the contact between the cultural fill (unit 8) and glacial drift (unit 10). As discussed above, the occurrence of unit 8 seems to have been a post-Watana tephra, but pre-Devil tephra, pit-filling episode, and therefore the lower component can be given an upper bracketing date correlating to the broad range of dates for these tephras (1800-3200 years B.P.). Cultural material from this component was limited to 17 bone fragments, all but one of which were small (less than 1 cm) and generally calcined or heavily burned. These fragments were also attributable to medium-large mammal. The one exception was an unburned long bone fragment (6 cm by 4 cm) of a large mammal.

As mentioned previously, 1 surface feature and 1 subsurface feature were recorded at TLM 215. Feature 1, the depression where N100/E50 was placed, is 1 of 8 surface depressions noted on the knoll summit. The oval-shaped depression, oriented east-northeast to west-southwest, measures 2.6 m by 2 m including the berm which surrounds it. At the surface, the depth from the highest point on the berm to the depression floor is 22 cm. This feature can be said to encompass both the upper and lower site components.

Feature 2, a steep-sided rock feature comprised of sub-rounded cobbles and boulders lying primarily in the northwest quadrant of the test square, also appears to be associated with both site components. The largest boulder in the feature, measuring 46 cm by 25 cm, lies in the overburden drift but juts upward through the overlying strata and is visible at the surface. At least 5 other cobbles, cascading toward the northwest corner of the square, also rest within the overburden drift, and are clearly associated with the upper component. Underlying cobbles are mantled by a sediment appearing visually to be Devil tephra, but identified through petrographic analysis to be either upper or lower Watana tephra (Romick, this volume). Lenses of tephra and charcoal are interbedded between the Feature 2 cobbles which plunge to a depth of ca. 60 cm below site datum. Mixing of these lenses probably accounted for the difference between the field and laboratory identification of the tephra samples. The stratigraphic context of these tephra- mantled cobbles suggest that they are more likely correlated with the lower component, or possibly another component which has not been adequately represented because of limited site testing. None of the cobbles within Feature 2 had been fire-cracked, nor were any fire-cracked spalls observed in the fill. Only 1 basalt flake was recovered from this feature.

A total of 5 radiocarbon samples were collected from the site. Two of these were taken from Feature 2, and because of the mixed stratigraphic context were not submitted for dating. Another 2 samples of very small charcoal pieces mixed with the matrix from the lens at the contact of units 8 and 10 proved to be too small for dating. Only 1 sample, collected from the overburden drift (unit 3) was submitted for dating. The resulting date for the upper site component was 1580 ± 110 years: A.D. 370.

Evaluation:

The limited testing done at TLM 215 has shown that the knoll on which the site is located has had sustained prehistoric use during at least 2 different time periods. The more recent time period, radiocarbon dated to 1580 ± 110 years B.P. (A.D. 370) falls within the early prehistoric Athapaskan occupation of Interior Alaska. Stratigraphic context suggests that the lower component predates the Devil tephra while post-dating Watana tephra, placing it in a time frame of ca. 1800-3200 years B.P. (A.D. 150-1250 B.C.). The small assemblage of lithic debitage and bone fragments indicate that tool manufacture or modification and processing of medium to large mammals was occurring at the site. At present there is insufficient data with which to determine the actual function of the depression (Feature 1) and the subsurface rock feature (Feature 2) which it encompasses at TLM 215. The archeological literature for prehistoric Athapaskan sites does, however, document frequent use of depressions or pits for a variety of purposes. Although the dimensions of Feature 1 conform most closely to what have previously been identified as cache pits (Workman 1977b), the presence of small calcined bone fragments, such as found at TLM 215, are not usually associated with such pits. Whatever its function during the Athapaskan period, the depression certainly may have been used differently during the earlier period of site occupation.

Several factors warrant that further testing be done at TLM 215. First, the single 1 m by 1 m test square permitted only a glimpse of one of several depressions on a prominent knoll, likely to have been used extensively in prehistoric times. Testing of the other depressions would answer questions about site extent and may provide additional information for dating the lower site component. Secondly, the inter-relationship between TLM 215 and TLM 184, only 300 m distant, needs to be further explored as the upper two site components at TLM 184 seem to correlate with the components at TLM 215. Another factor to consider is that only a handful of sites with cultural depressions have been discovered and tested in the project area to date. The rarity of these sites justifies that close attention be paid to them. Finally, the transition between the lower component at TLM 215, a time period associated with the Arctic Small Tool Tradition, and the lower component, associated with the Athapaskan tradition, is little known in the archaeological record for Interior Alaska and should be further explored.

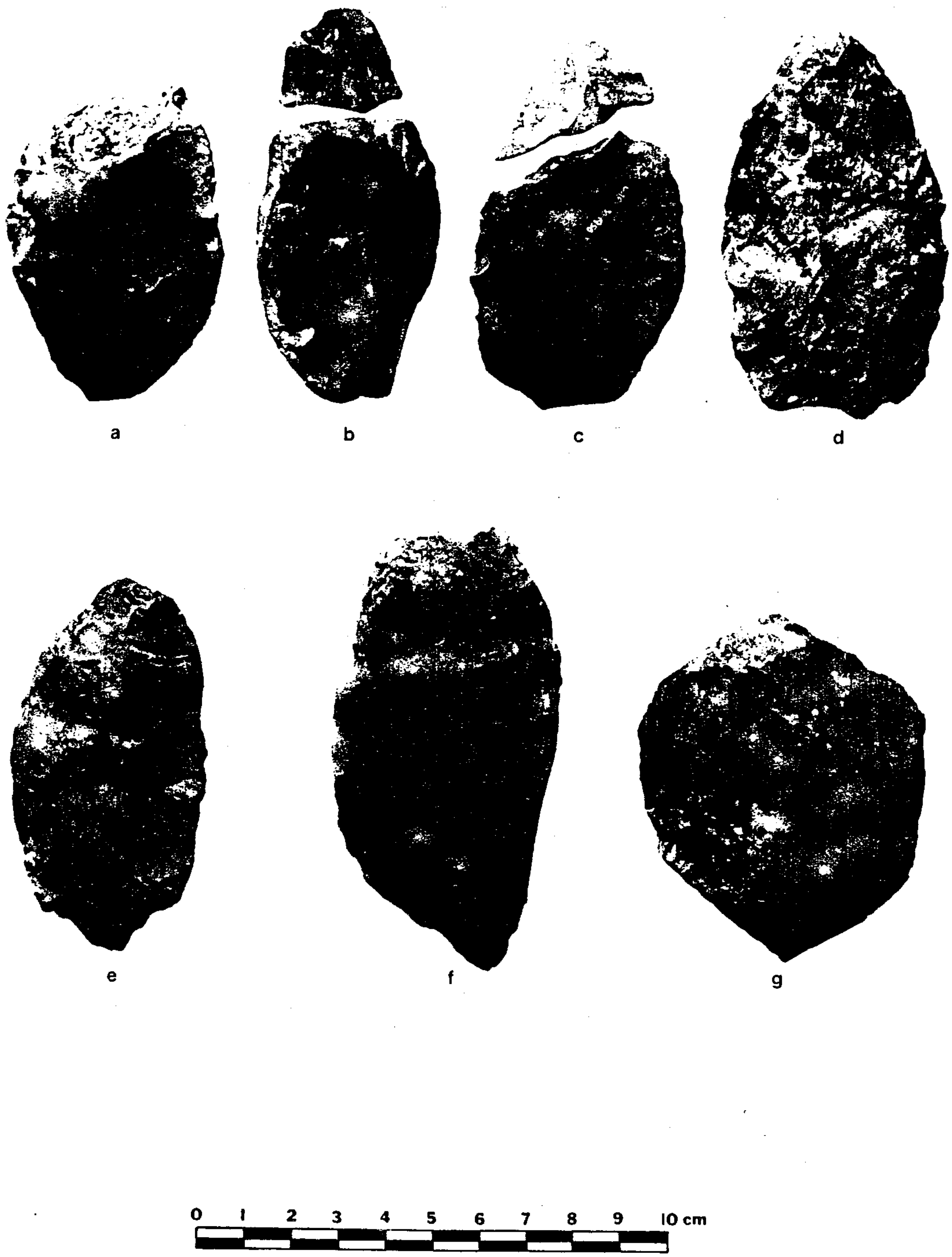


Figure 3.101. Artifacts from Site TLM 030.

Figure 3.102. Artifacts from Site TLM 030.

Figure 3.103. Artifacts from Site TLM 128.

Figure 3.104. Artifacts from Site TLM 180.

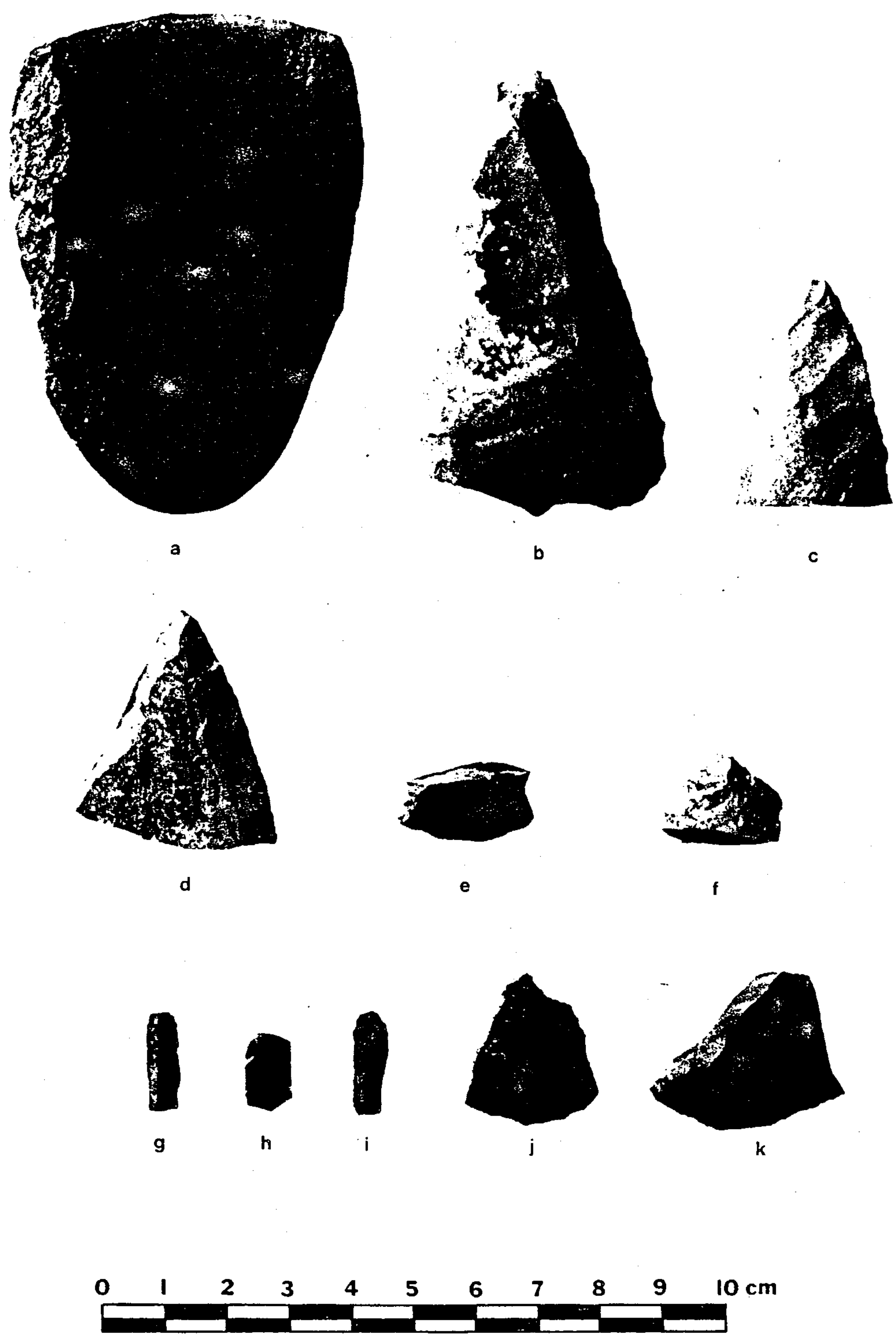


Figure 3.105. Artifacts from Site TLM 184.

TABLE 3.43

ARTIFACT SUMMARY BY STRATIGRAPHIC UNIT, TLM 215.

Unit	Description
Organic to gray sandy silt (unit 1b/2)	2 Basalt flakes
Gray sandy silt (unit 2)	3 Basalt flakes
Overburden drift (unit 3)	1 Basalt flake with cortex
Overburden drift to Devil tephra (unit 3/5, 3/4/5, 4/5)	23 Basalt flakes 5 Argillite flakes 25 Bone fragments
Devil tephra (unit 5)	1 Basalt flake 1 Bone fragment
Cultural unit mottled drift to Glacial drift (unit 8/10)	17 Bone fragments
Feature 2 (mixed units 3-8)	1 Basalt flake
Unit unknown (unit 1, 2, or 3)	1 Argillite flake 3 Bone fragments

TABLE 3.44

FAUNAL MATERIAL, TLM 215.

Soil Unit	Test Square	Description
3/5	N100/E50	2 Long bone fragments, calcined, medium-large mammal
		1 Fragment, calcined, small-large mammal
		22 Fragments, calcined, medium-large mammal
5		1 Fragment, calcined, medium-large mammal
8/10		1 Long bone fragment, unburned, large mammal
		1 Fragment, unburned, medium-large mammal
		2 Fragments, heavily burned, medium-large mammal
		13 Fragments, calcined, medium-large mammal
	Shovel Test 1A/1B	2 Long bone fragments, calcined, medium-large mammal
		1 Fragment, calcined, medium-large mammal

TABLE 3.45

ARTIFACT SUMMARY, TLM 215.

Lithic Material	
34	Basalt flakes
1	Basalt flake with cortex
6	Argillite flakes
41 Total	
Faunal Material	
46	Bone fragments

KEY TO FIGURES 3.96 - 3.105

Figure		Site	Accession Number, Description
3.96	a	TLM 016	UA83-132-6, endscraper
	b	TLM 016	UA83-132-73, biface fragment
	c	TLM 016	UA83-132-127, retouched tabular fragment
	d	TLM 016	UA83-132-50, retouched flake
	e	TLM 069	UA83-131-42, biface
	f	TLM 097	UA83-224-71, burinated corner notched projectile point
	g	TLM 097	UA83-224-11, endscraper
	h	TLM 097	UA83-224-73, endscraper
3.97	a	TLM 030	UA83-130-1949, 1951, articulating fragments; projectile point
	b	TLM 030	UA83-130-127, projectile point
	c	TLM 030	UA83-130-1923, projectile point
	d	TLM 030	UA83-130-130, projectile point
	e	TLM 030	UA83-130-48, projectile point
	f	TLM 030	UA83-130-1931, projectile point
	g	TLM 030	UA83-130-1932, projectile point
	h	TLM 030	UA83-130-351, projectile point
	i	TLM 030	UA83-130-1005, projectile point
	j	TLM 030	UA83-130-867, projectile point
	k	TLM 030	UA83-130-1915, projectile point
	l	TLM 030	UA83-130-349, projectile point
	m	TLM 030	UA83-130-1935, projectile point
	n	TLM 030	UA83-130-124, projectile point

KEY TO FIGURES 3.96 - 3.105 (Continued)

Figure		Site	Accession Number, Description
3.98	a	TLM 030	UA83-130-1933, biface
	b	TLM 030	UA83-130-1958, biface or point preform
	c	TLM 030	UA83-130-353, projectile point or point preform
	d	TLM 030	UA83-130-1956, biface or point preform fragment
	e	TLM 030	UA83-130-128, 129, articulating fragments; elongate biface
	f	TLM 030	UA83-130-619, biface
3.99	a	TLM 030	UA83-130-1263, endscraper
	b	TLM 030	UA83-130-1380, endscraper
	c	TLM 030	UA83-130-1941, endscraper
	d	TLM 030	UA83-130-1938, endscraper
	e	TLM 030	UA83-130-1922, endscraper
	f	TLM 030	UA83-130-1421, endscraper
	g	TLM 030	UA83-130-1262, endscraper
	h	TLM 030	UA83-130-1921, endscraper
	i	TLM 030	UA83-130-1124, endscraper
3.100	a	TLM 030	UA83-130-820, modified flake
	b	TLM 030	UA83-130-2409, ochre
	c	TLM 030	UA83-130-1924, modified flake
	d	TLM 030	UA83-130-1261, modified flake
	e	TLM 030	UA83-130-352, modified flake
	f	TLM 030	UA83-130-1955, modified flake

KEY TO FIGURES 3.96 - 3.105 (Continued)

Figure		Site	Accession Number, Description
3.101	a	TLM 030	UA83-130-1943, biface
	b	TLM 030	UA83-130-1945, 1946, articulating pieces; biface
	c	TLM 030	UA83-130-1939, 1950, articulating pieces; biface
	d	TLM 030	UA83-130-1947, biface
	e	TLM 030	UA83-130-1942, biface
	f	TLM 030	UA83-130-1948, biface
	g	TLM 030	UA83-130-1944, modified flake
3.102	a	TLM 030	UA83-130-1464, modified cobble
	b	TLM 030	UA83-130-969, hammerstone
	c	TLM 030	UA83-130-1892, hammerstone
	d	TLM 030	UA83-130-621, biface
	e	TLM 030	UA83-130-1926, modified cobble
3.103	a	TLM 128	UA83-230-44, microblade fragment
	b	TLM 128	UA83-230-33, microblade fragment
	c	TLM 128	UA82-68-15, microblade fragment
	d	TLM 128	UA83-230-23, microblade fragment
	e	TLM 128	UA83-230-236, modified flake
	f	TLM 128	UA83-230-104, unifacial tool
	g	TLM 128	UA83-230-41, endscraper
	h	TLM 128	UA82-68-85, projectile point fragment
	i	TLM 128	UA83-230-42, projectile point fragment
	j	TLM 128	UA83-230-43, projectile point fragment
	k	TLM 128	UA83-230-128, projectile point fragment
	l	TLM 128	UA83-230-25, UA82-68-226, projectile point fragments
	m	TLM 128	UA83-230-97, projectile point
	n	TLM 128	UA83-230-24, projectile point fragment
	o	TLM 128	UA83-230-190, projectile point fragment

KEY TO FIGURES 3.96 - 3.105 (Continued)

Figure		Site	Accession Number, Description
3.104	a	TLM 180	UA83-106-359, microblade
	b	TLM 180	UA83-106-169, microblade
	c	TLM 180	UA83-106-312, microblade
	d	TLM 180	UA83-106-396, microblade
	e	TLM 180	UA83-106-168, microblade
	f	TLM 180	UA83-106-290, microblade
	g	TLM 180	UA83-106-310, microblade
	h	TLM 180	UA83-106-401, blocky core
	i	TLM 180	UA83-106-390, blocky core
	j	TLM 180	UA83-106-400, blocky core
	k	TLM 180	UA83-106-297, primary reduction flake
3.105	a	TLM 184	UA83-110-474, adze preform
	b	TLM 184	UA83-110-799, unifacial tool
	c	TLM 184	UA83-110-800, unifacial tool
	d	TLM 184	UA83-110-451, biface fragment
	e	TLM 184	UA83-110-549, projectile point base
	f	TLM 184	UA83-110-808, biface fragment
	g	TLM 184	UA83-110-525, microblade fragment
	h	TLM 184	UA83-110-422, microblade fragment
	i	TLM 184	UA83-110-776, microblade fragment
	j	TLM 184	UA83-110-448, endscraper
	k	TLM 184	UA83-110-402, scraper fragment

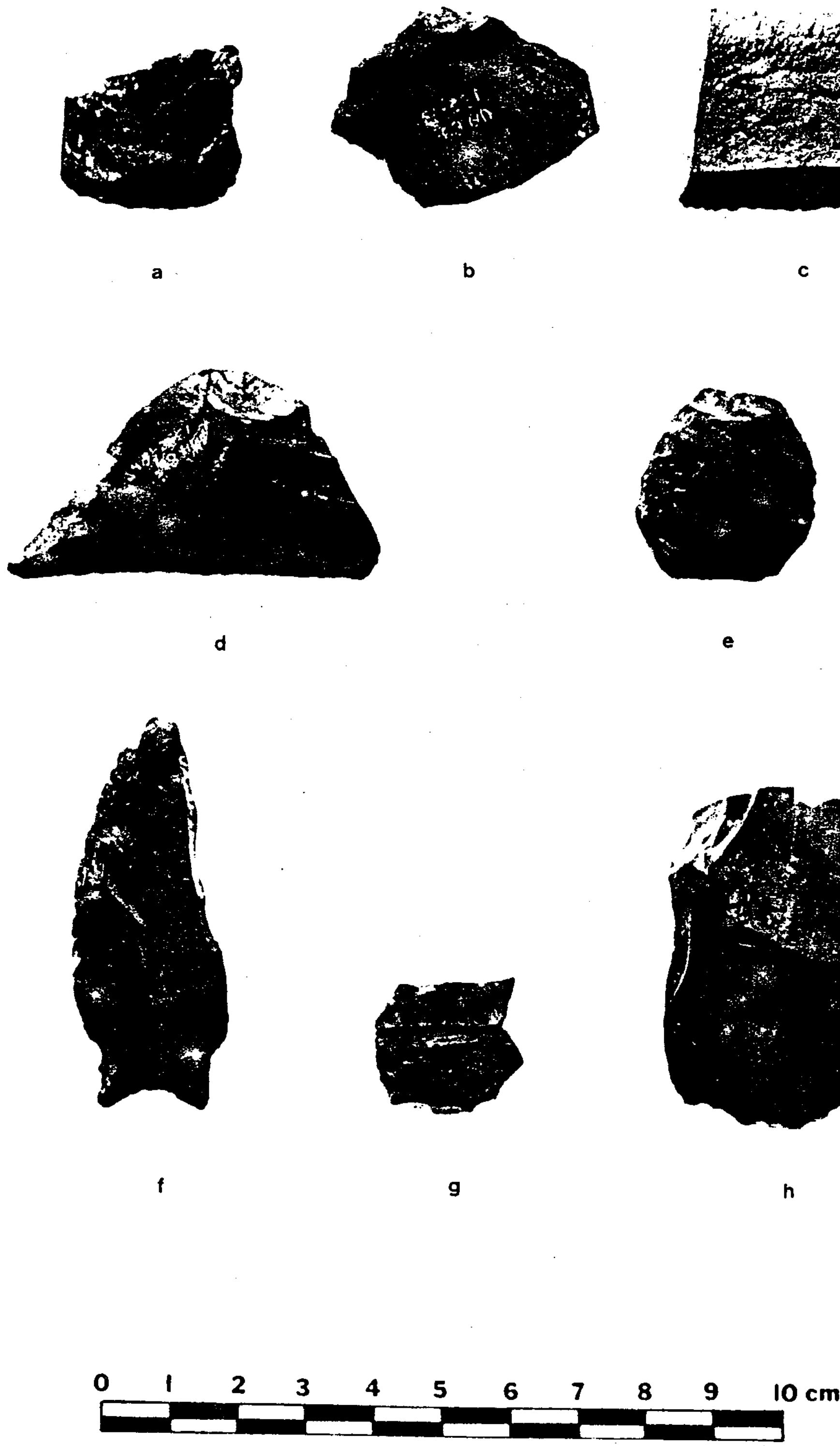


Figure 3.96. Artifacts from Sites TLM 016 (a-d),
TLM 069 (e), and TLM 097 (f-h)

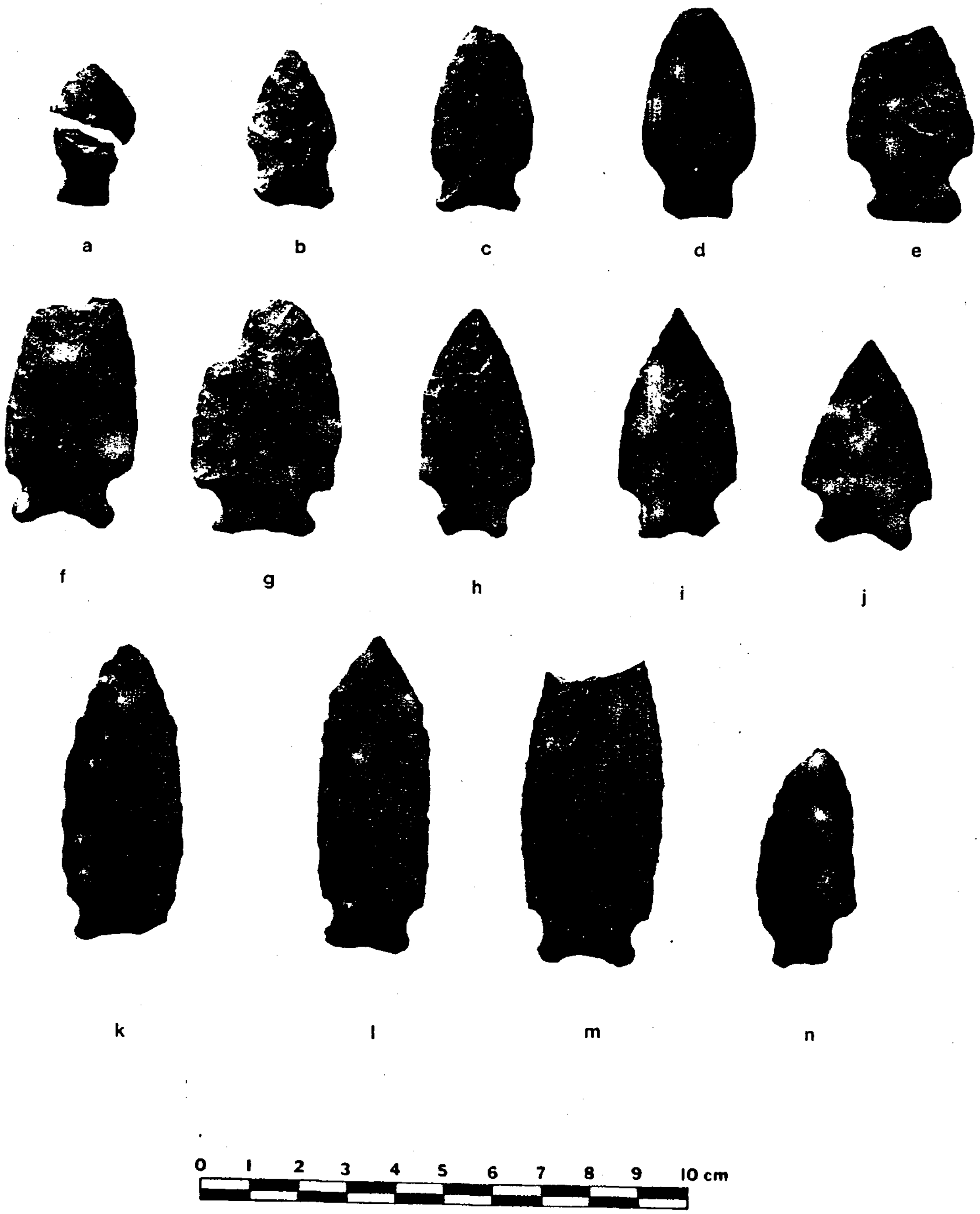


Figure 3.97. Artifacts from Site TLM 030.

Figure 3.98. Artifacts from Site TLM 030.

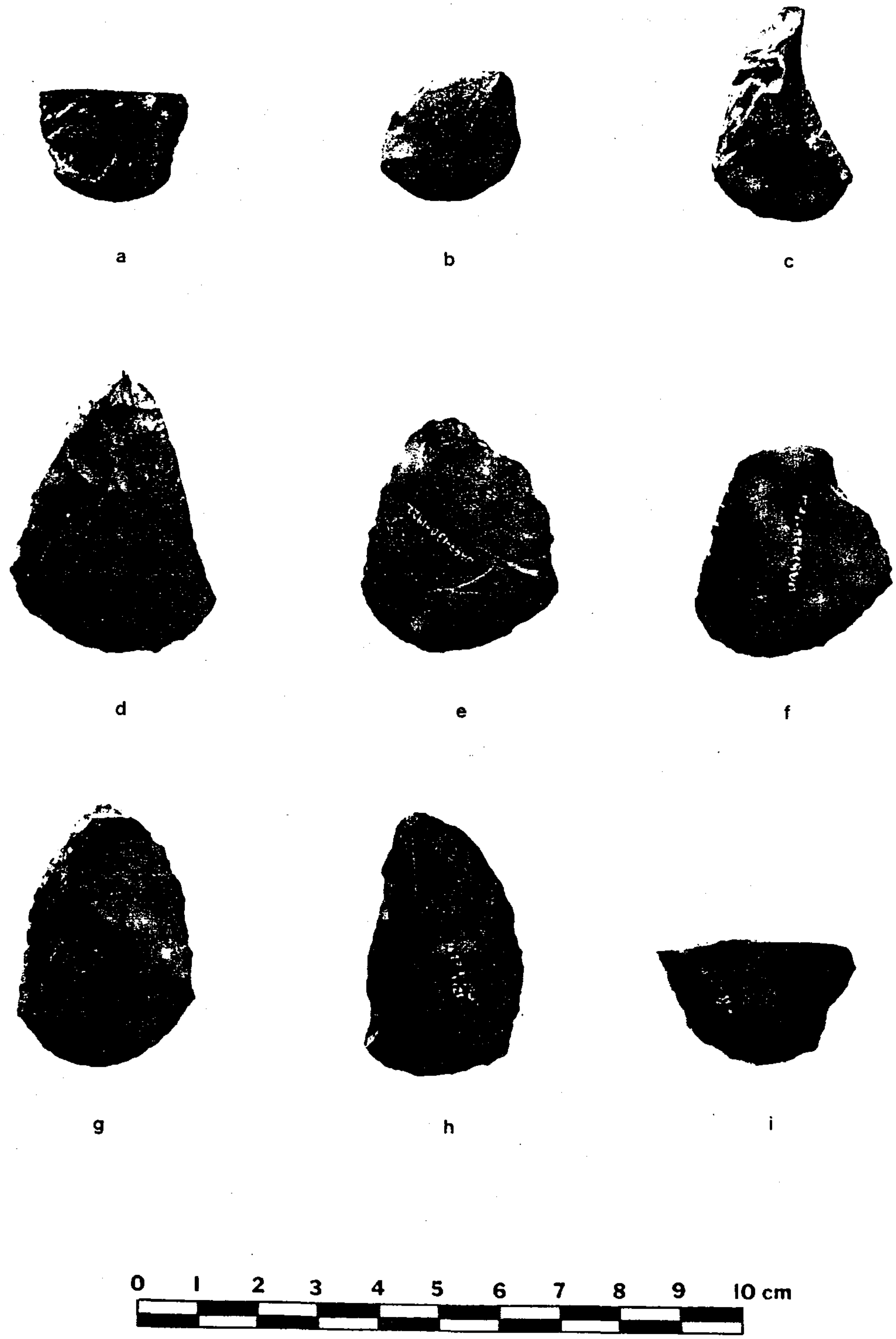


Figure 3.99. Artifacts from Site TLM 030.

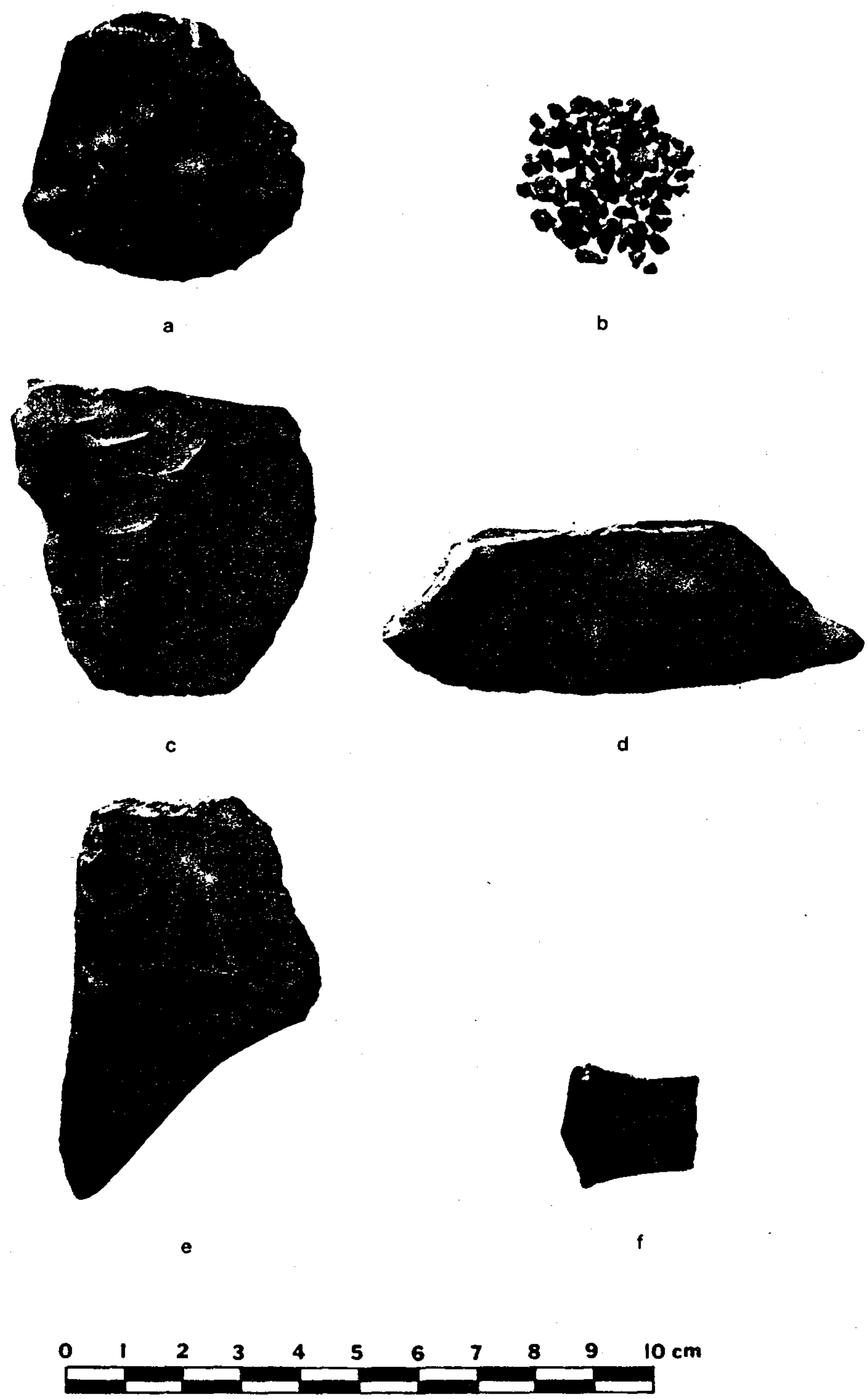


Figure 3.100. Artifacts from Site TLM 030.

5 - MITIGATION OF IMPACT ON HISTORIC AND ARCHEOLOGICAL SITES: A PRELIMINARY EVALUATION OF ALL SITES KNOWN TO DATE 1980-1983

5.1 - Mitigation Policy and Approach

It is mandated by federal law that the effect of any federal project or federally licensed project on cultural resources must be assessed and mitigation measures developed to lessen or avoid the impact on those resources on, or determined to be eligible for inclusion in, the National Register of Historic Places. Mitigation measures are management tools which provide options when making decisions regarding the preservation or reduction of impact to cultural resources. Although the concept has, and is presently, undergoing refinement, it clearly consists of three options: avoidance, preservation, and investigation (preservation through excavation).

(a) Avoidance

Avoidance consists of any measures that avoid adverse effects of a project on cultural resources. Avoidance in and of itself may not be totally effective if not coupled with a monitoring program that will insure that an historic or archeological site protected from the immediate adverse effect (direct and indirect impact) of the project is not inadvertently damaged in the future as a result of the project (potential impact). For the Susitna Hydroelectric Project, potential damage may result from, but is not limited to, operation of the facilities, increased access to remote areas, recreational activities, private development, and the transfer of lands from federal and state governments to corporate or private parties. Therefore, avoidance must be considered in terms of long range and short range goals aimed at protecting cultural resources beyond the immediate construction phase of the dam and its ancillary facilities.

(b) Preservation

Preservation is any measure that results in the reduction or avoidance of impact on cultural resources through physical maintenance or protection aimed at preventing further deterioration or destruction. Preservation, as with avoidance, implies both short term and long term measures. Preservation may consist of stabilization, reconstruction, as well as preservation of a site by constructing a barrier around the site, patrolling and monitoring the site, public education, or the establishment of an archeological preserve. Of all the preservation options available for the Susitna Project, monitoring may have the greatest potential for long term preservation of not only a particular site or group of sites but for cultural resources in general.

(c) Investigation

Investigation refers to a problem orientated data recovery program aimed at collecting and conserving archeological data in a scientific manner. A program of this type means that data recovery procedures are developed for each site or group of sites, analysis of materials is undertaken, and the results are disseminated to professional and public audiences. In addition to investigation as a method of avoiding adverse impact, a site(s) could be investigated (excavated), either partially or in whole; if a site(s) appears to fit the research needs of the overall cultural resource management program; if a site(s) may contain information critical to the larger mitigation program; or if a site(s) cannot be protected from indirect or potential impact such as increased off the road traffic, increased recreational use, an increase in the number of people in the area or increased site visibility. It is recommended that sites actually investigated on this project be selected on the basis of systematic testing and the recommendations of the SHPO.

5.2 - Mitigation Plan

Any mitigation plan must be based on an evaluation of project impact on the total resource, including known and undiscovered sites. Therefore, because portions of the area to be impacted by the Susitna Hydroelectric Project remain to be surveyed and investigated, any mitigation plan must include a program to examine the entire surveyable area and mitigate adverse effects on all sites on, or eligible for, the National Register of Historic Places. Mitigation of any adverse impact to cultural resources must await approval of the license application as well as approval by the State of Alaska to actually construct the hydroelectric facilities.

The highest priority towards mitigating adverse impact to cultural resources associated with the Susitna Hydroelectric Project is to complete the archeological and historical survey and thus provide a complete inventory of cultural resources. The access corridor and associated borrow pits and haul road, the railroad, as well as the transmission corridors between Healy and Fairbanks, Anchorage and Willow, the Watana Dam site to the intertie and recreation areas (phases 2-5), have not been subject to thorough on-the-ground survey and subsurface testing. Therefore, continued survey is necessary. As sites are documented during the course of the survey, they can be classified into one of the impact categories: 1) direct impact, 2) indirect impact, 3) potential impact, and 4) no impact (see Chapter 5 for definitions).

All sites subject to either direct or indirect impact should be systematically tested to assess their eligibility for inclusion in the National Register of Historic Places (Table 5.1). To accomplish this goal these sites will require systematic testing (for a thorough discussion of systematic testing procedures see chapter 2 of the April 1982 cultural resource report). The objective of systematic testing is to obtain sufficient data to assess the spatial limits, stratigraphy, relative age and possible cultural affiliation of a specific archeological site. This data is essential to assess the ability of a site to yield significant scientific information, which is a necessary criteria for determining the significance of cultural resources under the Advisory Council guidelines as stated in "Procedures of the Advisory

Council on Historic Preservation, 36 CER 800. Following systematic testing, each site will need to be evaluated to determine whether it can provide data relevant to the three major goals of North American archeology: 1) establishment of cultural chronologies, 2) definition of past lifeways, and 3) explanation of cultural process. If, following systematic testing, a specific site is found to hold no potential to address any of these three fundamental scientific questions, or research topics addressed in Appendix B of "Treatment of Archeological Properties: A Handbook" (1980) published by the Advisory Council on Historic Preservation, it should be determined not significant and thus not eligible for inclusion in the National Register of Historic Places. Should a determination of nonsignificance be made, no further mitigation efforts would be required. This has already proven to be the case with one site, TLM 033.

Those sites found to hold potential to address humanistic, historical and/or local-interest research questions should be determined significant and thus be considered eligible for inclusion in the National Register of Historic Places. The mitigation measure recommended for these sites should be preservation of information through systematic scientific excavation. This determination should be made in concert with the SHPO. The preservation of these sites through investigation (excavation) should be prioritized based upon the immediacy of the threat of adverse impact to each specific site. Thus in general terms, those which occur in locales slated for construction should be removed through excavation prior to those within the impoundment areas. Within the impoundment areas sites at lower elevations would receive priority above those at higher elevations. Such a prioritization should minimize potential conflicts between cultural resources and construction schedules.

The mitigation measure recommended for all sites falling within the potential impact category is avoidance. For those sites subject to potential adverse impact (Table 5.1) a monitoring plan should be developed in concert with the appropriate land managing agencies (state and federal). The monitoring program should, at minimum, establish a photographic record of each site on an annual basis and should any adverse impact resulting from activities of the Susitna Hydroelectric Project occur, it should be documented. Should any particular site or group of sites experience adverse impact as a result of the project, the appropriate mitigation measure for that particular circumstance should be applied. The monitoring program should be continued throughout the course of the project on an annual basis until the hydroelectric facility is operational. At such time, the monitoring program should become the responsibility of the appropriate land managing agency.

Coupled with the monitoring program should be an educational program for all construction and other project personnel, which emphasizes the necessity to avoid cultural resources in and adjacent to the project area. Such a program should stress the importance of the scientific information the sites contain and should discourage looting and artifact collecting.

Evaluation of the sites located between 1980 and 1983 as well as sites on record in the Alaska Office of History and Archeology are tabulated in Tables 4.1-4.5 (Chapter 4) and Table 5.1. Of the known sites, 137 will be directly or indirectly impacted and 133 have the potential of being impacted. Based on available data, it appears that 10 sites will not be impacted by the project. However, this is a preliminary evaluation based on the fact that these sites are some distance from expected impact areas. Of the 245 sites presently known, 26 (10.6%) have already been systematically tested. Systematic testing is recommended for those sites that have been determined to be directly or indirectly impacted by the project (Table 5.1). For those sites on federal or state lands which will not be directly or indirectly impacted by the project, the cultural resource policies of the appropriate agency should be applied. Land status was taken from maps provided by Acres American and maps included in the FERC license application.

Of the 26 sites systematically tested to date, 22 have been determined significant and are likely eligible for the National Register and investigation is recommended after approval of the license application and construction. Three additional sites have been determined to be significant and are likely eligible for the National Register but are outside direct or indirect impact areas and avoidance and monitoring is recommended. One systematically tested site (TLM 033) did not produce any cultural material during testing and has been determined to be not significant. No further testing or investigation is recommended for this site.

TABLE 5.1

SUSITNA HYDROELECTRIC PROJECT - CULTURAL RESOURCE EVALUATION 1980 - 1983

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 005*	RR					PI	A	F
TLM 006*	RR					PI	A	F
TLM 007*	0					NI	None Required	PR
TLM 009*	RA-D				X	DI		
TLM 015	0	R			X	II		SS
TLM 016	WC	S	X			DI	I	SS
TLM 017	WC	R			X	DI		SS
TLM 018	WC/T W-I	S	X			DI/DI	I	Kn
TLM 020	0	R	X			PI	A	Kn
TLM 021	RA-J	R				PI	A	SP
TLM 022	DR/B-E	S	X			DI/DI	I	Ty
TLM 023	DR/B-E	R			X	DI/DI		Ty
TLM 024	DR/B-E				X	DI/DI		Ty
TLM 025	0	R				PI	A	VS

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 026	WR	R			X	DI		SSS
TLM 027	DR	S	X			DI	I	Kn
TLM 028	0	R				PI	A	F
TLM 029	DR	R			X	DI		Kn
TLM 030	DR	S	X			DI	I	Kn
TLM 031	0	R				PI	A	VS
TLM 032	0	R				PI	A	VS
TLM 033	WR	S		X		DI	None Required	VS
TLM 034	DR	R			X	DI		Kn
TLM 035	0	R				PI	A	VS
TLM 036	0	R				PI	A	SSS
TLM 037	0	R				PI	A	VS
TLM 038	0	S	X			II	I	SS
TLM 039	WR	S	X			DI	I	SS
TLM 040	WR	S	X			DI	I	VS

TABLE 5.1 (Continued)

AHRS #	Location	Testing Level	Appears to be Eligible For Inclusion in the National Register of Historic Places		Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
			Yes	No				
TLM 041	0	R				PI	A	VS
TLM 042	WR	S	X			DI	I	SSS
TLM 043	WR	S	X			DI	I	VS
TLM 044	0	R				PI	A	SSS
TLM 045	0	R				PI	A	SP
TLM 046	0	S	X			PI	A	SP
TLM 047	0	R				PI	A	SSS
TLM 048	WR	S	X			DI	I	SS
TLM 049	0	R				PI	A	SSS
TLM 050	WR	S	X			DI	I	VS
TLM 051	WC	R				PI	A	SS
TLM 052	0	R				PI	A	SSS
TLM 053	0	R				PI	A	SSS
TLM 054	B-E/RA-H				X	DI/PI		SS
TLM 055	B-C/RA-H	R			X	DI/PI		SS

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 056	B-C/RA-H	R	X			DI/PI	I	SS
TLM 057	RA-L	R				PI	A	SS
TLM 058	WR	R			X	DI		VS
TLM 059	WR	S	X			DI	I	SS
TLM 060	WR	R			X	DI		SS
TLM 061	WR	R			X	DI		SS
TLM 062	WR	S	X			DI	I	VS
TLM 063	WR	R			X	DI		VS
TLM 064	WR	R			X	DI		VS
TLM 065	WR	S	X			DI	I	SSS
TLM 066	O	R				PI	A	SS
TLM 067	O	R				NI	None Required	VS
TLM 068	GT	R				NI	None Required	SS
TLM 069	O	S	X			PI	A	SSS
TLM 070	GT	R				NI	None Required	SS

TABLE 5.1 (Continued)

AHRS #	Location	Testing Level	Appears to be Eligible For Inclusion in the National Register of Historic Places		Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
			Yes	No				
TLM 071	RA-J	R	X			II	I	SSS
TLM 072	WR	R			X	DI		SSS
TLM 073	WR	R				DI		SSS
TLM 074	O	R				PI	A	SSS
TLM 075	WR	R			X	DI		SSS
TLM 076	O	R				PI	A	SSS
TLM 077	WR	R			X	DI		SSS
TLM 078	B-C/RA-H	R			X	DI/PI		SP
TLM 079	WR	R	X			DI	I	SSS
TLM 080	WR	R	X			DI	I	VS
TLM 081	B-C/RA-H	R			X	DI/PI		SS
TLM 082	GT	R				NI	None Required	SS
TLM 083	B-C/RA-H	R			X	DI/PI		SP
TLM 084	B-C/RA-H	R			X	DI/PI		SP
TLM 085	B-C/RA-H	R			X	DI/PI		SP

TABLE 5.1 (Continued)

AHRS #	Location	Testing Level	Appears to be Eligible For Inclusion in the National Register of Historic Places: Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 086	B-C/RA-H	R			X	DI/PI		SS
TLM 087	B-C/RA-H	R			X	DI/PI		SP
TLM 088	R-C/RA-H	R			X	DI/PI		SS
TLM 089	B-C/RA-H	R			X	DI/PI		SS
TLM 090	B-C/RA-H	R			X	DI/PI		SS
TLM 091	B-C/RA-H	R			X	DI/PI		SS
TLM 092	0	R				PI	A	SS
TLM 093	0	R				PI	A	SS or PR
TLM 094	B-C/RA-H	R			X	DI/PI		SS
TLM 095	B-C/RA-H	R			X	DI/PI		SS
TLM 096	B-C/RA-H	R			X	DI/PI		SS
TLM 097	B-C/RA-H	S	X			DI/PI	I	SS
TLM 098	RA-L	R				PI	A	SP
TLM 099	RA-L	R				PI	A	SP
TLM 100	RA-J	R				PI	A	SSS

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 101	RA-Q	R			X	DI		SS
TLM 102	WR	R			X	DI		VS
TLM 103	ARB/RA-Q	R			X	DI/DI		SS
TLM 104	WR	R			X	DI		VS
TLM 105	RA-J	R				PI	A	SS
TLM 106	ARB	R			X	DI		SS
TLM 107	ARB	R			X	DI		SS
TLM 108	ARB	R			X	DI		SS
TLM 109	ARB/AR	R			X	DI/II		SS
TLM 110	ARB/AR	R			X	DI/II		SS
TLM 111	ARB/AR	R			X	DI/II		SS
TLM 112	T W-I/AR	R				PI/PI	A	SS
TLM 113	ARB/AR	R			X	DI/II		SS
TLM 114	ARB	R			X	DI		SS
TLM 115	WR	R			X	DI		SSS

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 116	AR/RA-I	R				PI/PI	A	SS
TLM 117	AR/RA-L	R				PI/PI	A	SP
TLM 118	0	R				PI	A	Ty
TLM 119	WR	R			X	DI		VS
TLM 120	0	R			X	II		VS
TLM 121	0	R			X	II		VS
TLM 122	0	R				II		VS
TLM 123	0	R				II		VS
TLM 124	0	R				II		VS
TLM 125	0	R				II	A	VS
TLM 126	WR	R			X	DI		VS
TLM 127	0	R				II		VS
TLM 128	0	S	X			PI		SSS
TLM 129	0	R				II		VS
TLM 130	0	S	X			II	I	VS

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 131	0	R				II	A	VS
TLM 132	0	R				II		VS
TLM 133	0	R			X	II		VS
TLM 134	0	R				PI	A	SSS
TLM 135	0	R				PI	A	SSS
TLM 136	0	R				PI	A	SSS
TLM 137	WC	R			X	DI		SSS
TLM 138	0	R				PI	A	SSS
TLM 139	0	R				PI	A	SSS
TLM 140	0	R				PI	A	SSS
TLM 141	0	R				PI	A	SSS
TLM 142	0	R				PI	A	SSS
TLM 143	0	S	X			II	I	SSS
TLM 144	0	R				PI	A	SSS
TLM 145	0	R			X	II		SSS

TABLE 5.1 (Continued)

AHRS #	Location	Testing Level	Appears to be Eligible For Inclusion in the National Register of Historic Places: Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 146	O	R				PI	A	SSS
TLM 147	O	R				PI	A	SSS
TLM 148	O	R				PI	A	SSS
TLM 149	O	R				PI	A	SSS
TLM 150	O	R				PI	A	SSS
TLM 151	O	R				PI	A	SSS
TLM 152	O	R				PI	A	SSS
TLM 153	ARB/AR				X	DI/DI		SS
TLM 154	O	R				PI	A	SSS
TLM 155	AR	R				PI	A	SP
TLM 159+	O	R				PI	A	SS
TLM 160+	WC	R			X	II		SS
TLM 164+	WC	R			X	II		SS
TLM 165+	WC	R			X	DI		SS
TLM 166+	WC	R			X	DI		SS

TABLE 5.1 (Continued)

AHRS #	Location	Testing Level	Appears to be Eligible For Inclusion in the National Register of Historic Places		Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
			Yes	No				
TLM 167+	WC	R			X	DI		SS
TLM 168+	AR	R				PI	A	SS
TLM 169+	WR	R			X	DI		SS
TLM 170+	O	R				PI	A	SS
TLM 171+	WR	R			X	DI		Ty
TLM 172+	WC	R			X	DI		SS
TLM 173+	WR	R			X	DI		SSS
TLM 174+	WR	R			X	DI		SS
TLM 175+	WR	R			X	DI		SS
TLM 176+	B-F	R			X	DI		SS
TLM 177+	WR	R			X	DI		SS
TLM 178+	DR	R			X	DI		Kn
TLM 179+	RA-K	R				PI	A	SSS
TLM 180+	WC	S	X			II	I	Ty
TLM 181+	O	R				PI	A	SS

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 182+	WR/RA-J	R			X	DI/PI		SSS
TLM 183+	0	R				PI	A	SSS
TLM 184+	WR	S	X			DI	I	SS
TLM 185+	0	R				PI	A	SSS
TLM 186+	RA-K	R				PI	A	SSS
TLM 187+	RA-J	R				PI	A	SSS
TLM 188+	B-F	R			X	DI		SS
TLM 189+	0	R				PI	A	SSS
TLM 190+	0	R				PI	A	SSS
TLM 191+	0	R				PI	A	SS
TLM 192+	WC	R			X	II		Kn
TLM 193+	0	R				PI	A	SS
TLM 194+	WR	R			X	DI		SSS
TLM 195+	0	R				PI	A	SS
TLM 196+	WR	R			X	DI		SSS

TABLE 5.1 (Continued)

AHRS #	Location	Testing Level	Appears to be Eligible For Inclusion in the National Register of Historic Places: Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 197+	O	R				PI	A	SS
TLM 198+	O	R				PI	A	SS
TLM 199+	WR	R			X	DI		VS
TLM 200+	WR	R			X	DI		VS
TLM 201+	B-C	R			X	DI		SS
TLM 202+	B-F	R			X	DI		SS
TLM 203+	B-F	R			X	DI		SS
TLM 204+	WR	R			X	DI		SSS
TLM 205+	O	R				NI	None Required	SSS
TLM 206+	WR	R			X	DI		SSS
TLM 207+	WR	R			X	DI		SSS
TLM 208+	RA-K	R				PI	A	SSS
TLM 209+	B-F	R			X	DI		SS
TLM 210+	B-F	R			X	DI		SS
TLM 211+	B-C	R			X	DI		SS

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
TLM 212+	B-F	R			X	DI		SS
TLM 213+	B-C	R			X	DI		SS
TLM 214+	B-F/AR	R			X	DI/PI		SS
TLM 215+	WR	S	X			DI	I	SS
TLM 218+	O	R				PI	A	SS
TLM 219+	O	R				PI	A	SS
HEA 012*	T-2 H-F					PI	A	SP
HEA 026*	T-1 H-F					PI	A	SP
HEA 030*	T-2 H-F					PI	A	SP
HEA 035*	T-2 H-F					PI	A	SP
HEA 037*	T-2 H-F					PI	A	SP
HEA 038*	T-2 H-F					PI	A	SP
HEA 080*	T-1 H-F					PI	A	F
HEA 083*	T-1 H-F					PI	A	F

TABLE 5.1 (Continued)

AHRS #	Location	Testing Level	Appears to be Eligible For Inclusion in the National Register of Historic Places		Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
			Yes	No				
HEA 119*	T-1 H-F					PI	A	F
HEA 128*	T-3 H-F					PI	A	SP
HEA 137*	T-2 H-F					PI	A	SP
HEA 139*	T-3 H-F					PI	A	SP
HEA 141*	T-3 H-F					PI	A	SP
HEA 142*	T-3 H-F					PI	A	SP
HEA 174	RA-L	R			X	II		F
HEA 175	O	S	X			II (1981)		
						NI (1982)	None Required	F
HEA 176	RA-L	R			X	II		F
HEA 177	GT	R				NI	None Required	F
HEA 178	GT	R				NI	None Required	F
HEA 179	GT	R				NI	None Required	F
HEA 180	AR	R				PI	A	F
HEA 181	ARB/AR	R				DI/PI		F

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
HEA 182	ARB/AR	R				DI/PI		F
HEA 183	RA-L	R				PI	A	F
HEA 184	RA-L	R				PI	A	F
HEA 185	RA-L	R				PI	A	F
HEA 186	O	R				NI	None Required	F
HEA 210	T-1 H-F	R				PI	A	SP
HEA 211	ARB	R			X	DI		F
FAI 141*	T-3 H-F					PI	A	PR
FAI 142*	T-3 H-F					PI	A	PR
FAI 143*	T-4 H-F					PI	A	PR
FAI 144*	T-4 H-F					PI	A	PR
FAI 145*	T-4 H-F					PI	A	PR
FAI 213	T-9 H-F	R				PI	A	SP
FAI 214	T-10 H-F	R				PI	A	PR

TABLE 5.1 (Continued)

			Appears to be Eligible For Inclusion in the National Register of Historic Places					
AHRS #	Location	Testing Level	Yes	No	Further Testing Required	Expected Impact	Recommended Mitigation	Land Status
ANC 052*	T-7 W-A					PI	A	PR
ANC 077*	T-17 W-A					PI	A	F
ANC 079*	T-17 W-A					PI	A	F
ANC 082*	T-10,11,15 W-A					PI	A	F
ANC 096*	T-15 W-A					PI	A	F
ANC 099*	T-17 W-A					PI	A	F
ANC 118*	T-16 W-A					PI	A	PR
ANC 245*	T-3,4,6 W-A					PI	A	SP
TYO 014*	T-1 W-A					PI	A	BA

*Sites reported in the files of the Alaska Office of History and Archeology.
+Sites located during the 1983 field season.

Abbreviations for Table 5.1

Location:

- AR - Access Route
- ARB - Access Route Borrow Area
- B - Borrow Area
- DR - Devil Canyon Dam Reservoir
- DC - Devil Canyon Construction Area
- GT - Geotechnical Area
- O - Other Portion of the Study Area
- T - Transmission Route
  - H-F - Healy to Fairbanks
  - W-A - Willow to Anchorage
  - W-I - Watana Dam to Intertie
- RA - Recreation Area
- WR - Watana Dam Reservoir
- WC - Watana Dam Construction Area

Expected Impact:

- DI - Direct Impact
- II - Indirect Impact
- PI - Potential Impact
- NI - No impact by the project as presently known

Testing Level:

- R - Reconnaissance Level
- S - Systematic Testing

Significance:

- X - The site has received testing and determined to be significant and is likely eligible for inclusion in the National Register of Historic Places.

Recommended Mitigation:

- A - Avoidance
- I - Investigation
- P - Preservation

Land Status:

- BA - Borough Approved or Patented
- SS - State Selected
- SSS - State Selected Suspended
- SP - State Patented
- VS - Village Selection; abbreviations for village selections:
  - Ch - Chickaloon
  - Kn - Knik
  - Ty - Tyone
- F - Federal
- PR - Private
- U - Unknown

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APPENDIX

MAPS OF SITE LOCATIONS AND SURVEY LOCALES

A number of federal laws, as well as ethical considerations, mandate that site locational data not be released to the general public if there is a possibility that the release of this proprietary data could create a risk of harm to such resources. The specific laws and ethical standards concerning the confidentiality of such data are summarized below:

(a) The National Historic Preservation Act, 1966 (Public Law 89-665), Title I, sec. 101, (a)4. Information relating to the location of sites or objects listed on, or eligible for, inclusion in the National Register, should be withheld from the general public if it would create a risk of destruction or harm to such sites or objects.

(b) Procedures of the Advisory Council on Historic Preservation, 36 CFR 800, Part 800.15(a). Information concerning the undertaking and effects of sites on or eligible for the National Register, should be made available to the general public within the limits of the Freedom of Information Act (5 U.S.C. 552), but need not include information on budget, financial, personnel and other proprietary matters, or the specific location of archeological sites.

(c) Archeological Resources Protection Act of 1979 (Public Law 96-95), Section 9(a). Information concerning the nature and location of any archeological resource for which the excavation or removal requires a permit or other permission under this Act or under any other provision of Federal Law, may not be made available to the public unless the federal land manager concerned determines that such disclosure would not create a risk of harm to such resources or to the sites at which such resources are located.

(d) Code of Ethics and Standards of Performance for the Society of Professional Archeologists, Sec. III, 3.2. An archeologist shall not reveal confidential information unless required by law.

Because of the possibility that cultural resources in the Upper Susitna Basin could be damaged if maps showing their locations were made available to the general public, this appendix will receive limited distribution.

APPENDIX FIGURES

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DRAFT MAPS

FIGURES A.1 - A.48

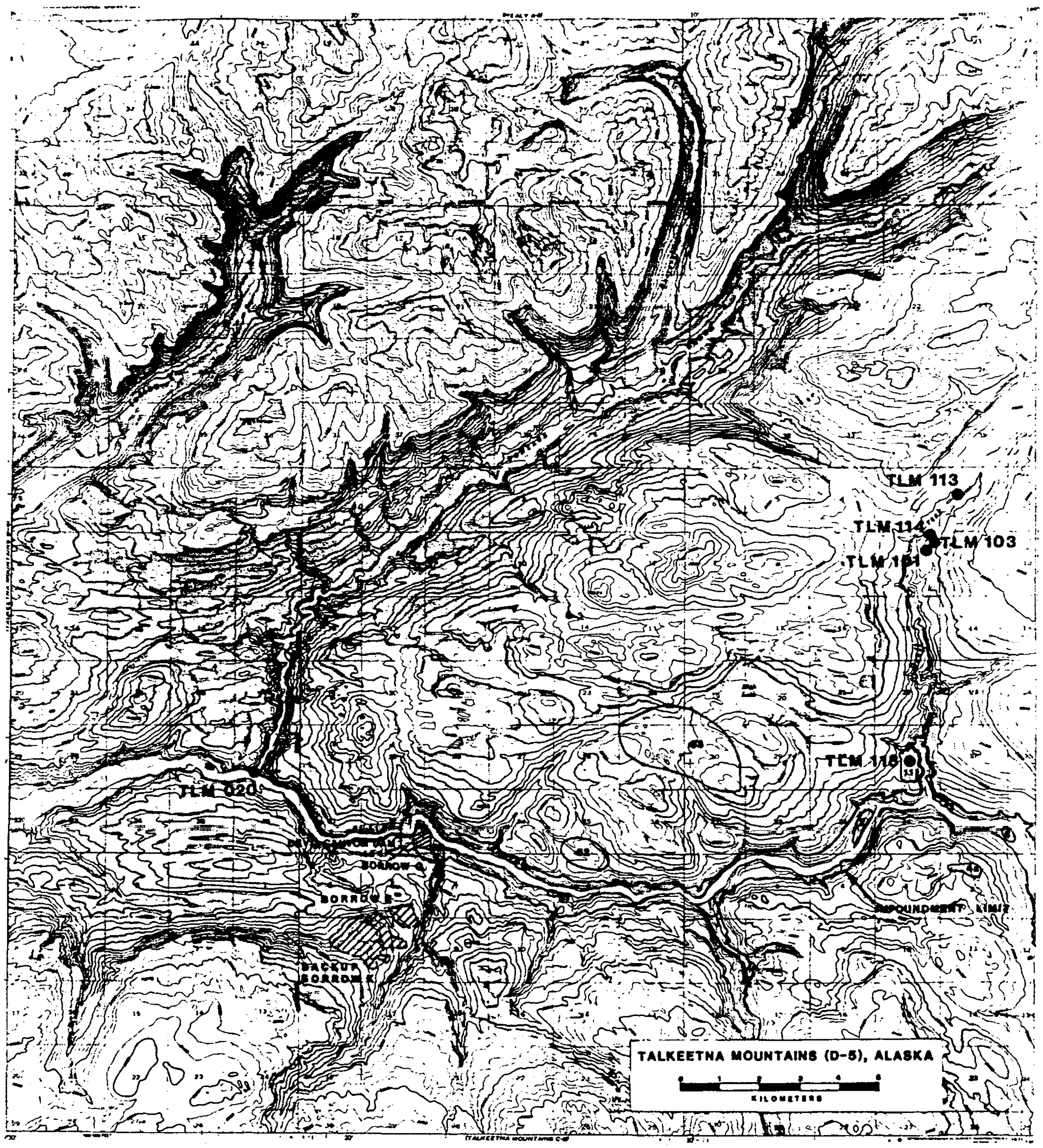
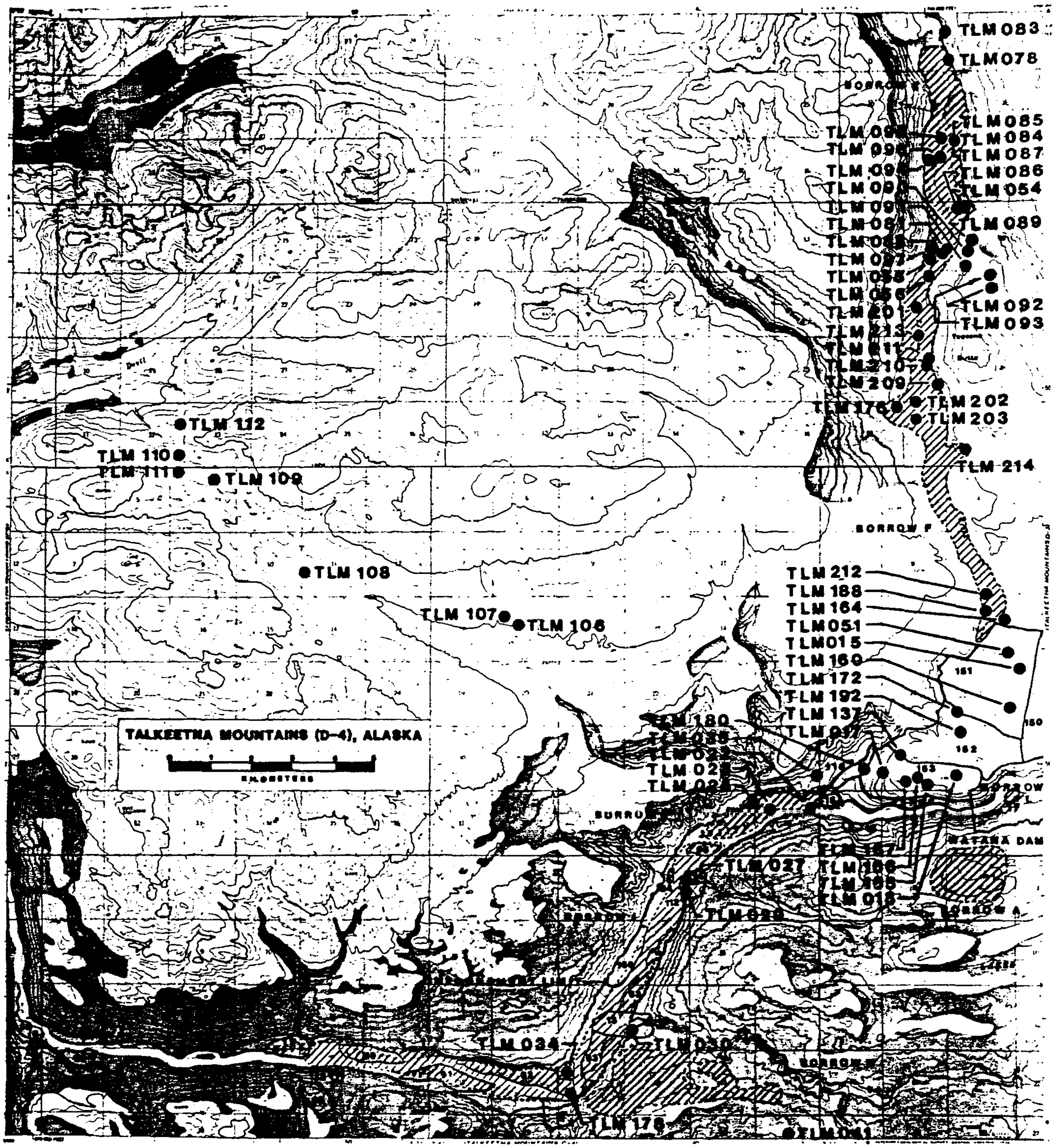


Figure A.1. Location of Sites and Survey Locales, Talkeetna Mts. D-5.



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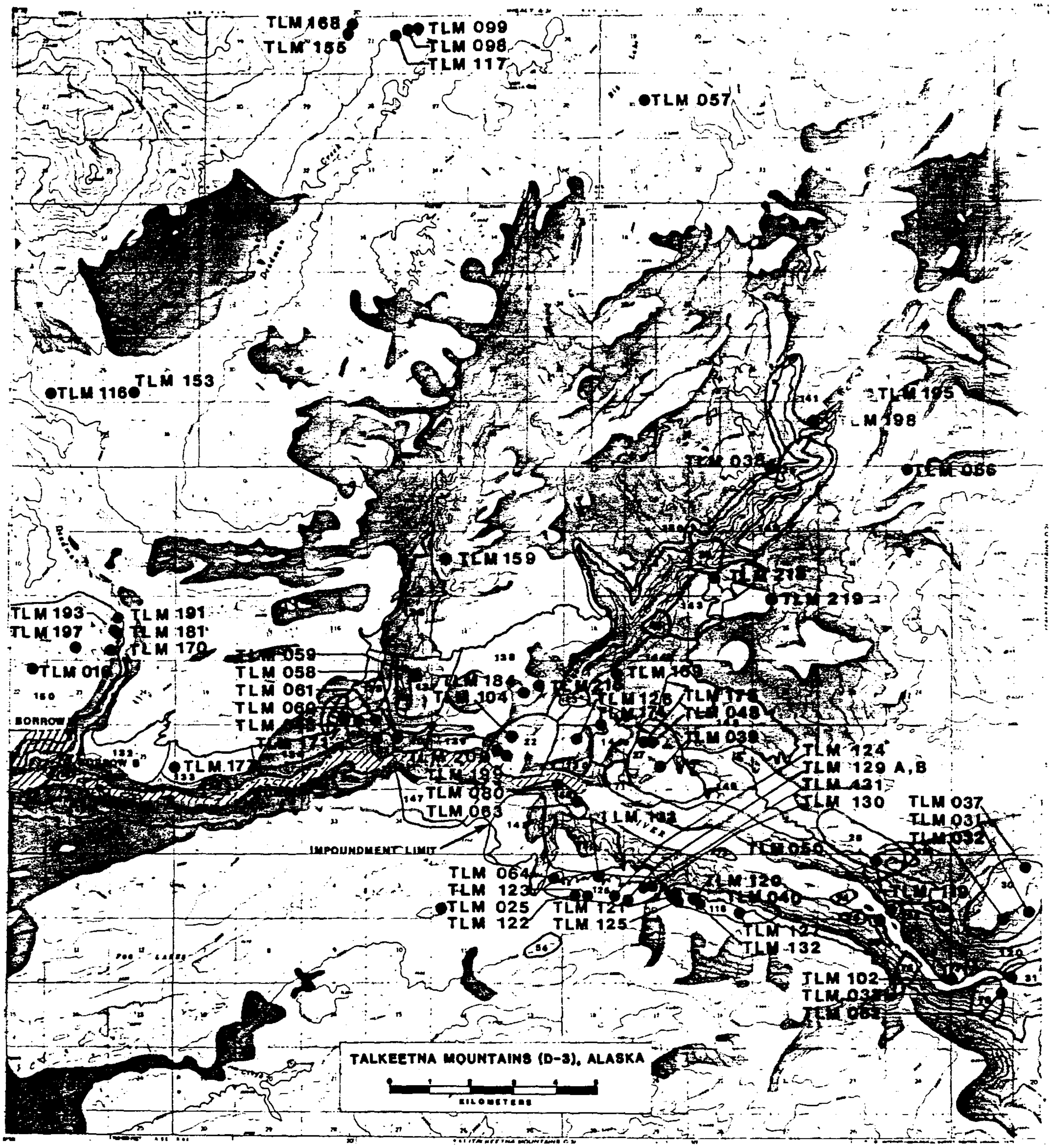

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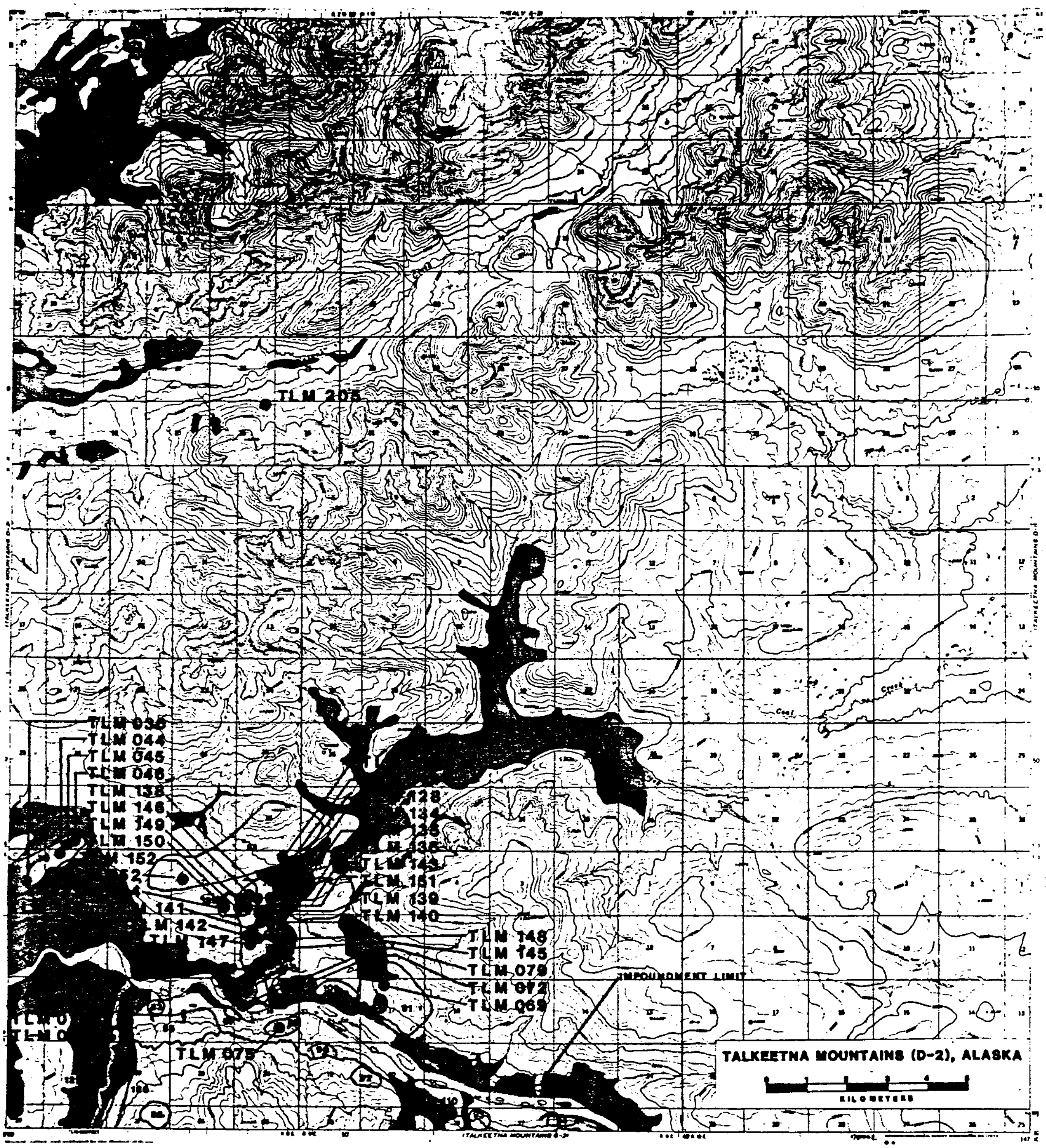

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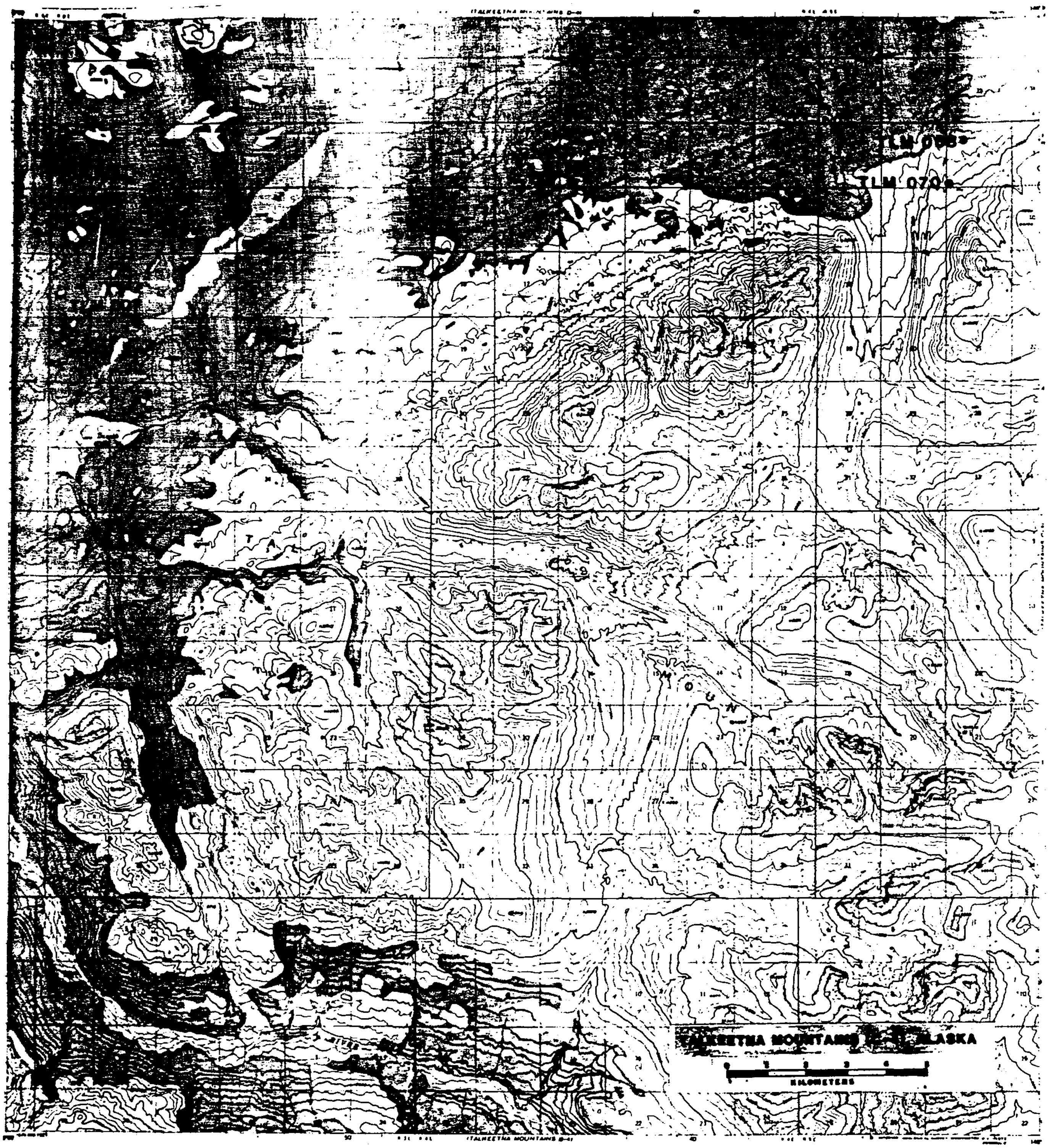

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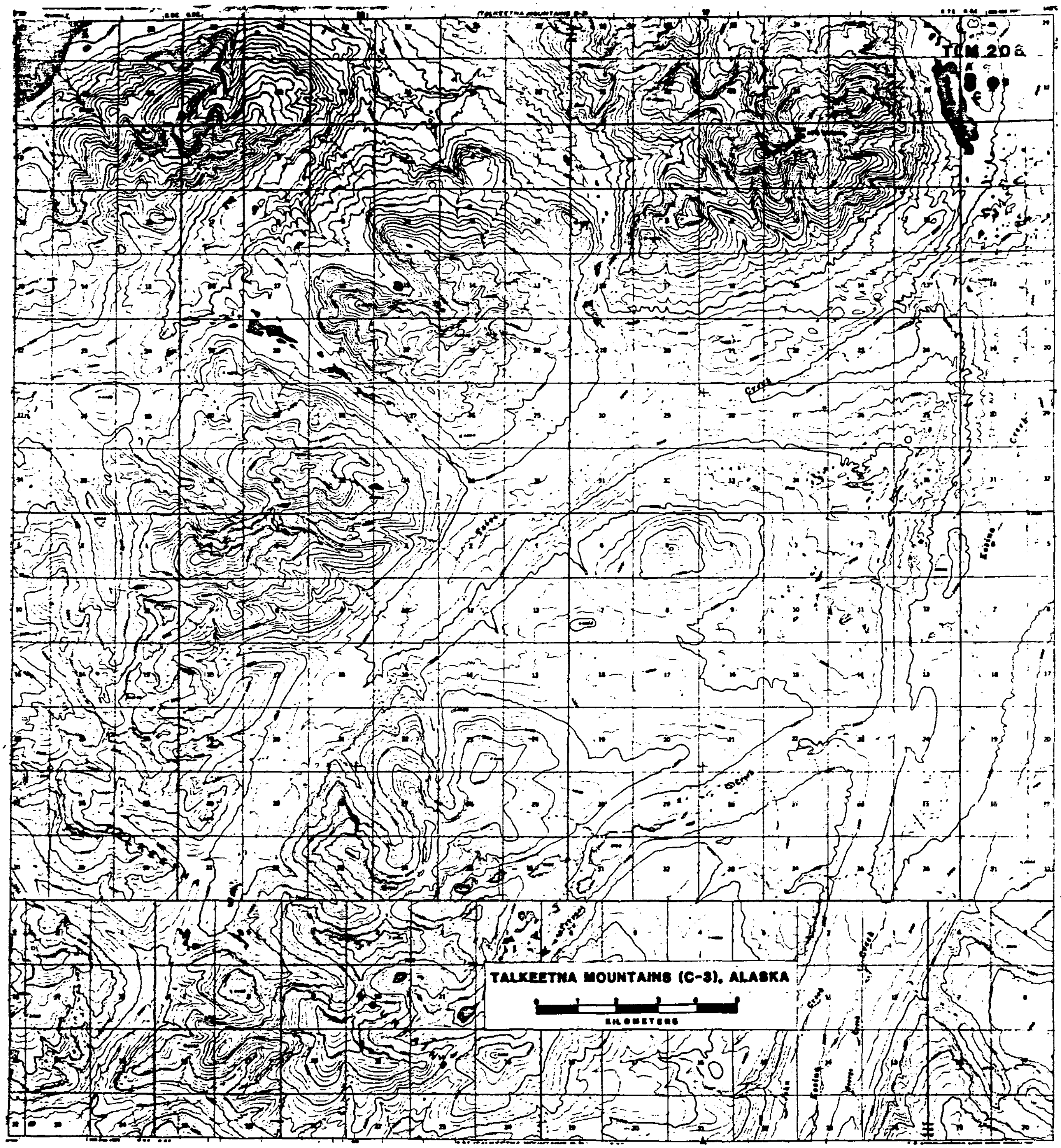
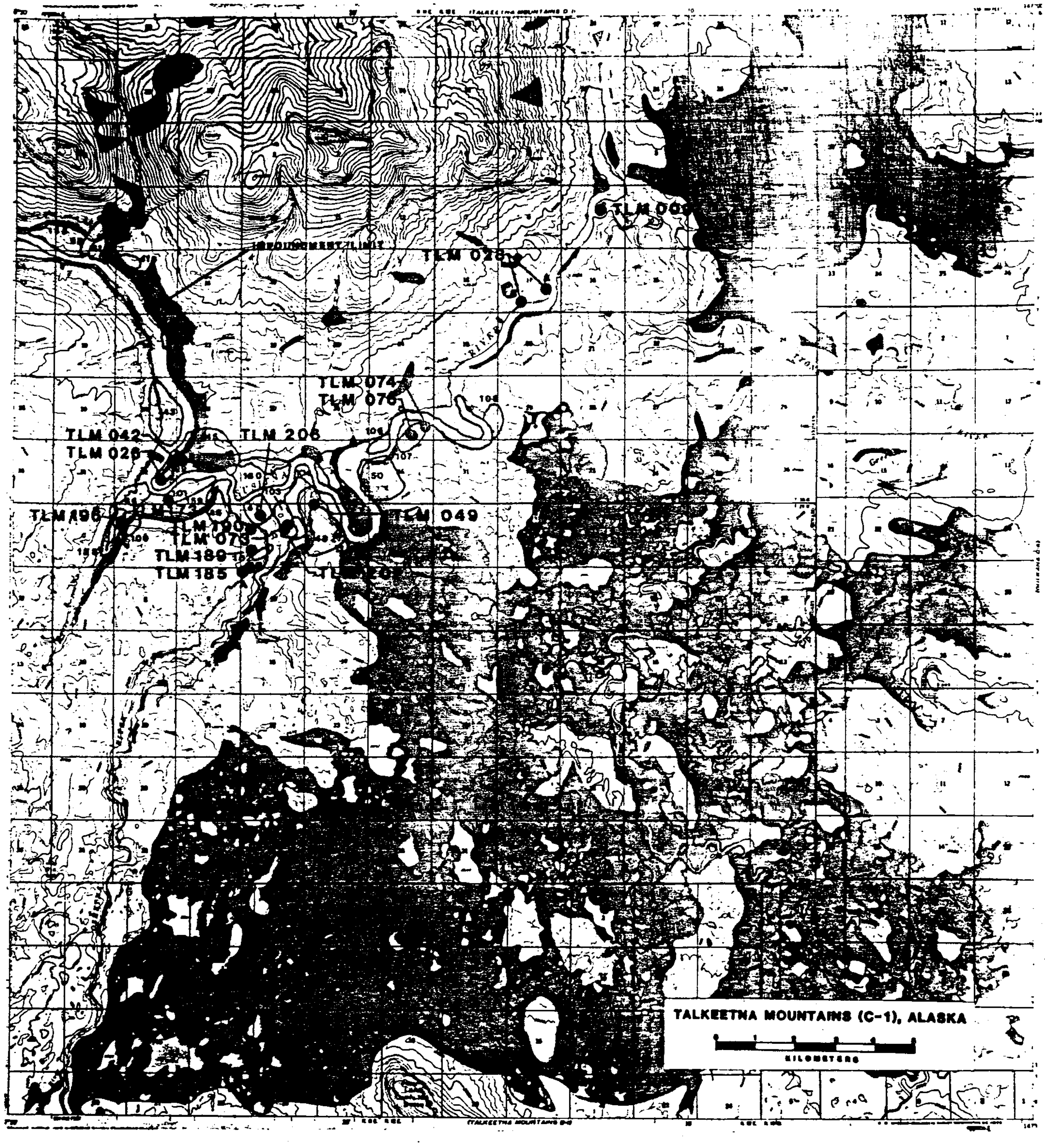


Figure A.6. Location of Site, Talkeetna Mts. C-3.

Figure A.7. Location of Sites and Survey Locales, Talkeetna Mts. C-2.



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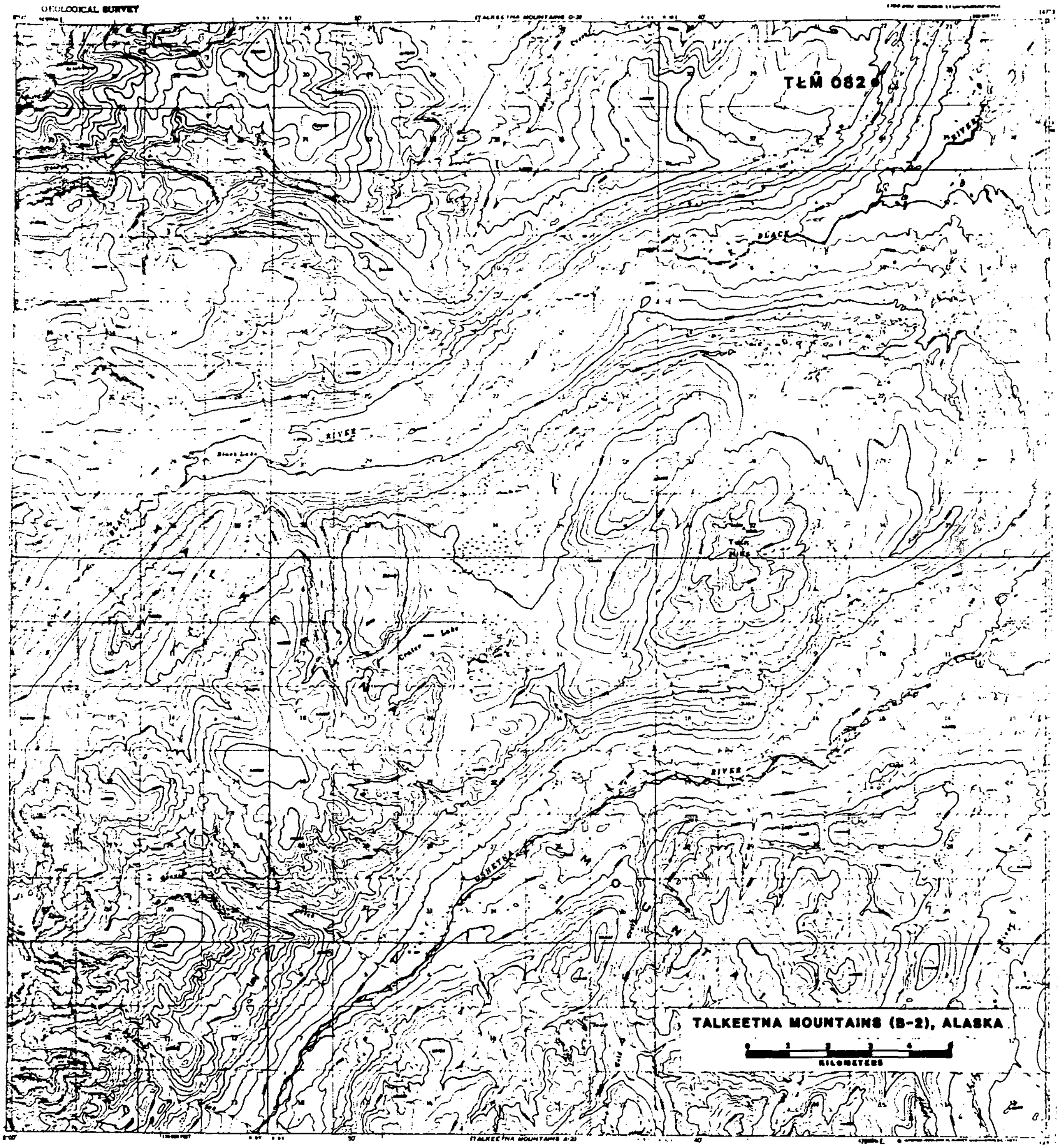


Figure A.9. Location of Site, Talkeetna Mts. B-2.

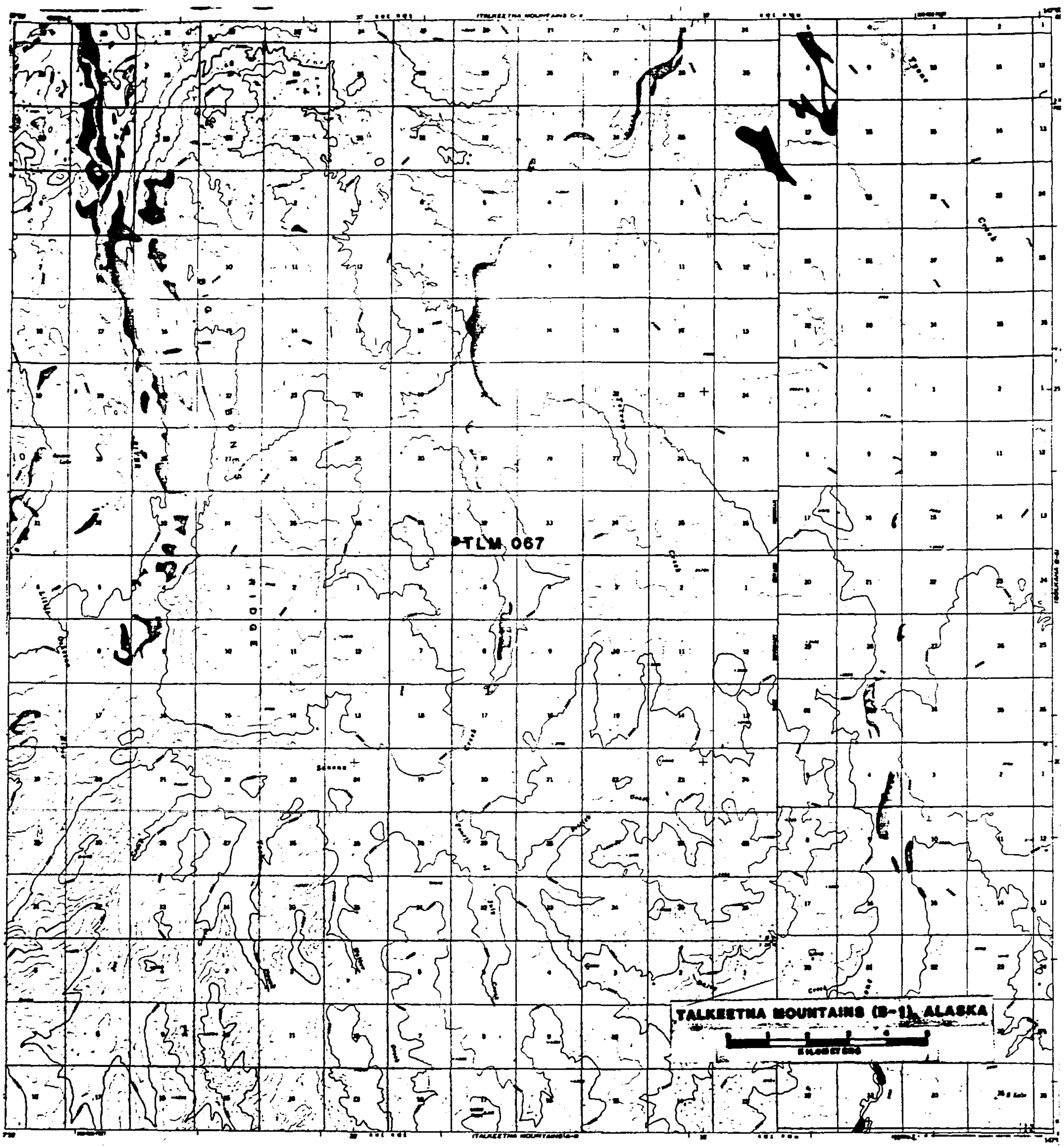


Figure A.10. Location of Site, Talkeetna Mts. B-1.

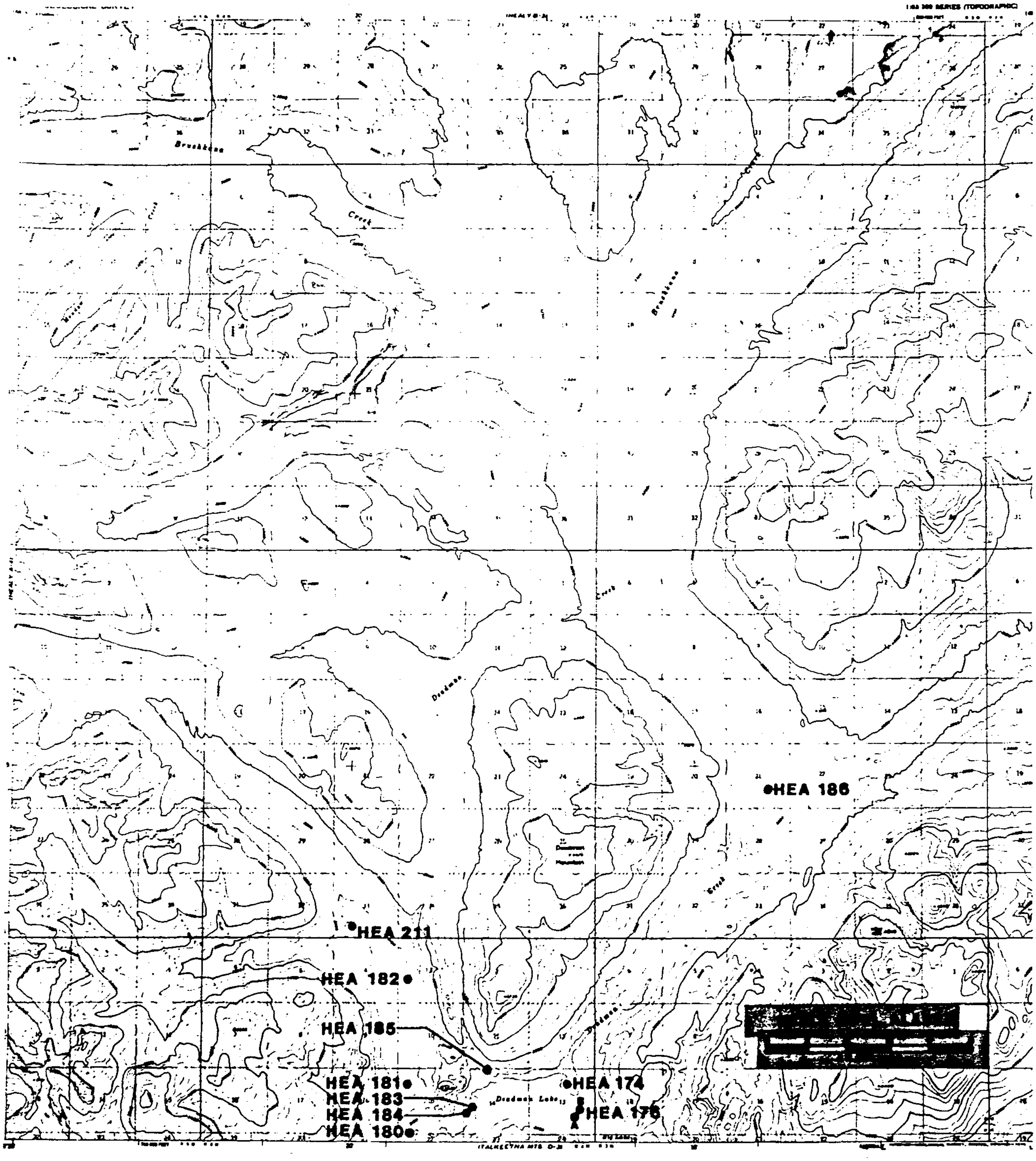


Figure A.11. Location of Sites, Healy A-3.

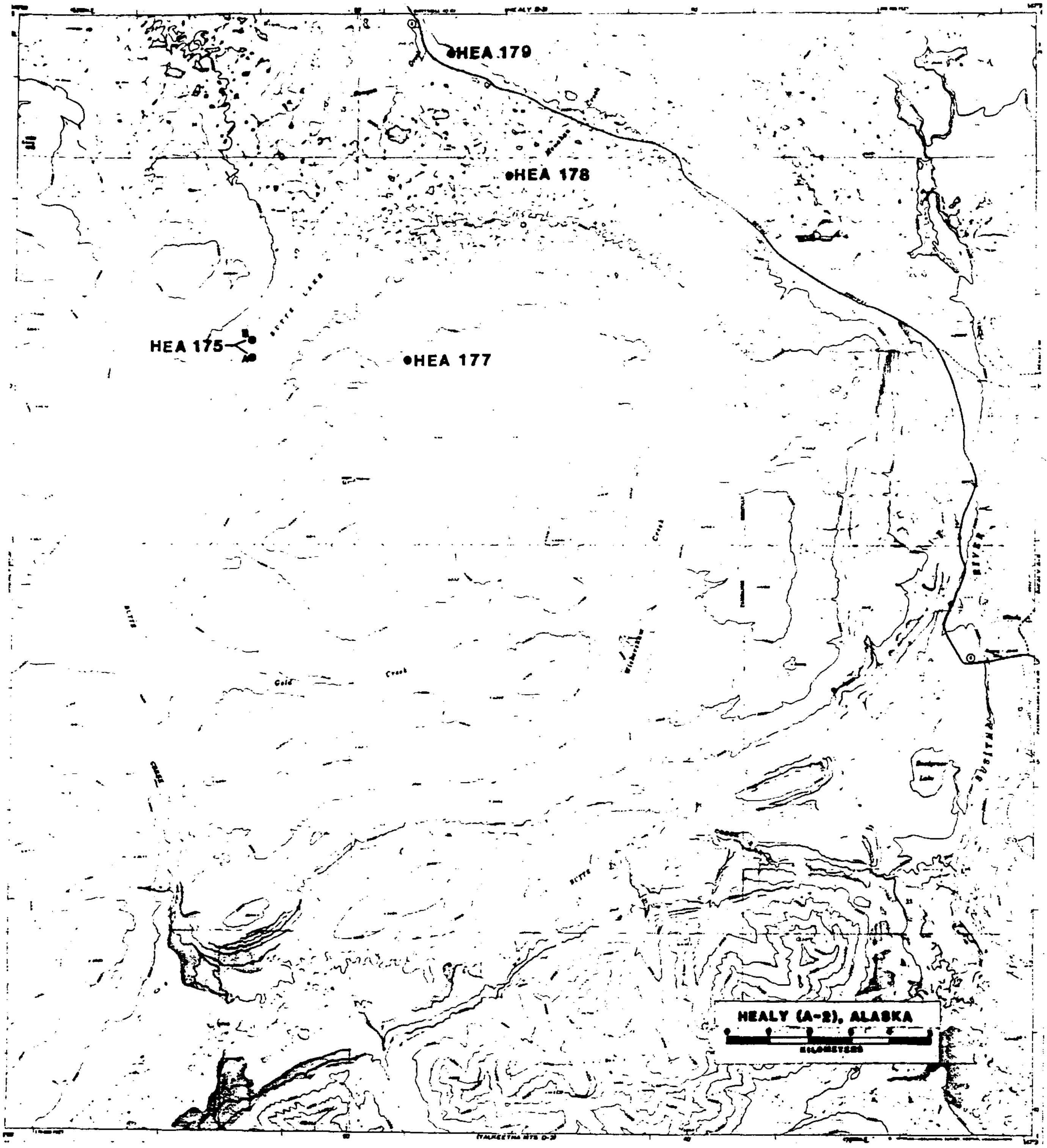


Figure A.12. Location of Sites, Healy A-2.

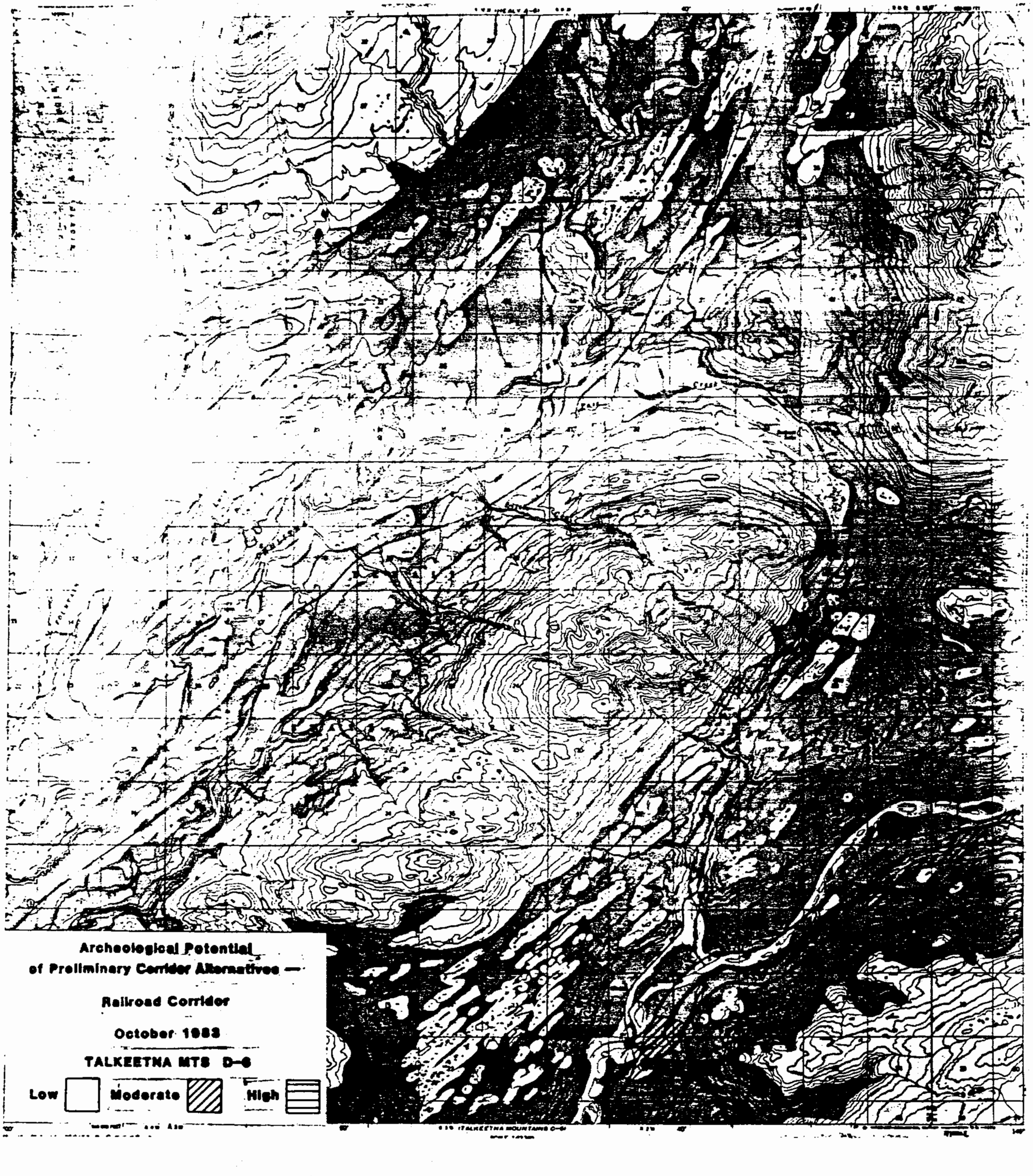


Figure A.13. Location of Sites Along Railroad Route, Talkeetna Mts. D-6.

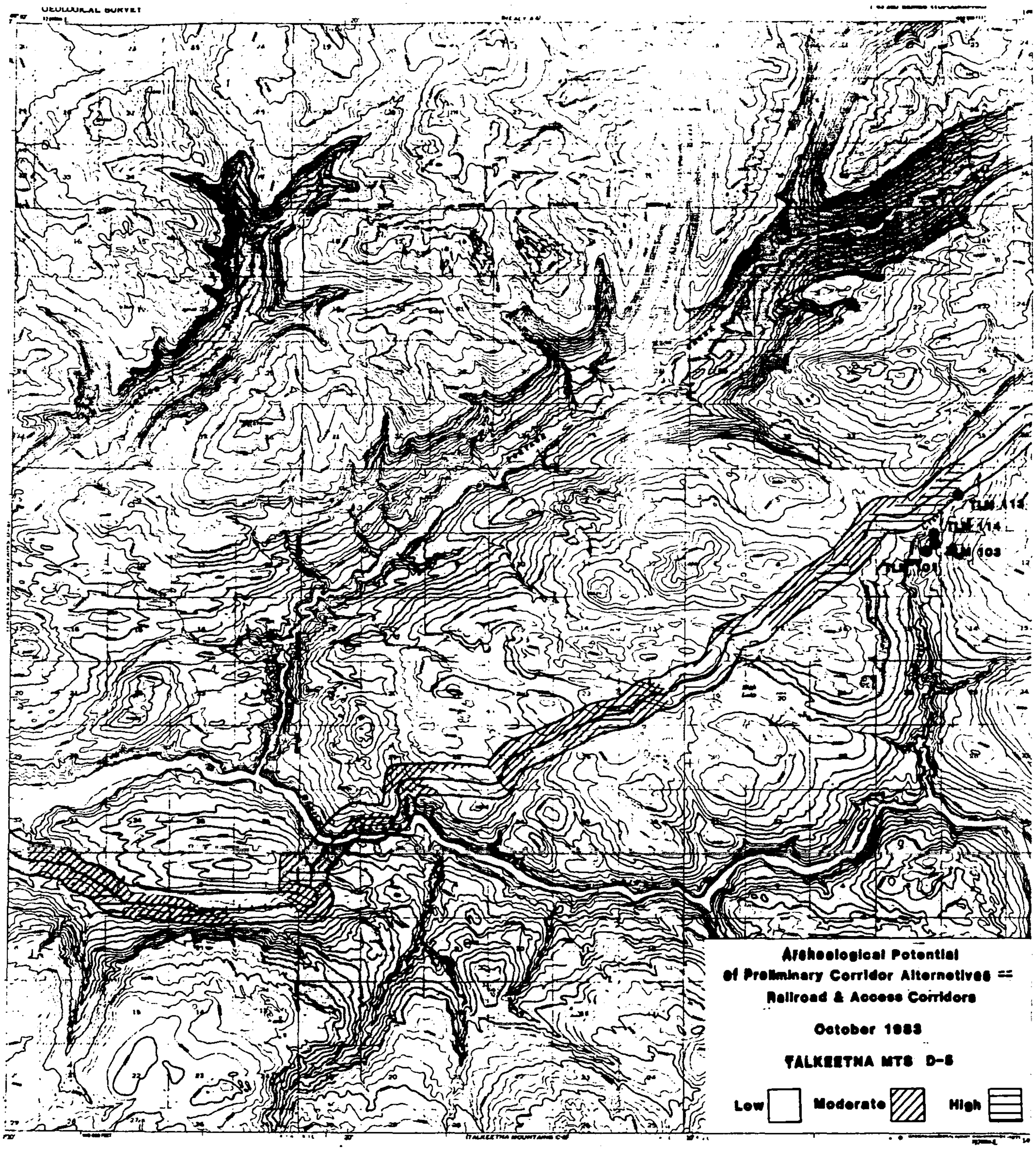


Figure A.14. Location of Sites Along Railroad and Access Routes, Talkeetna Mts. D-5.

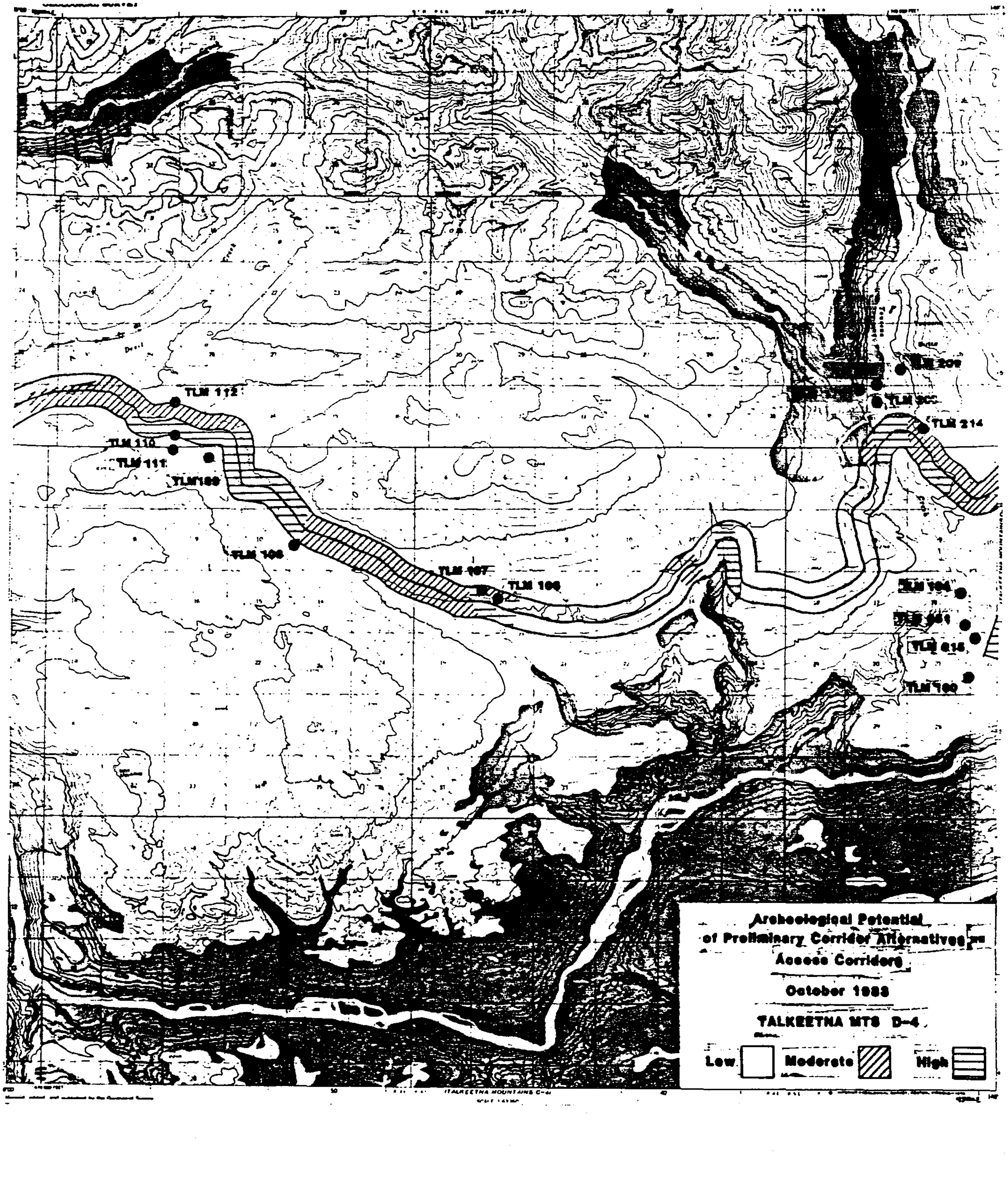


Figure A.15. Location of Sites Along Access Route, Talkeetna Mts. D-4.

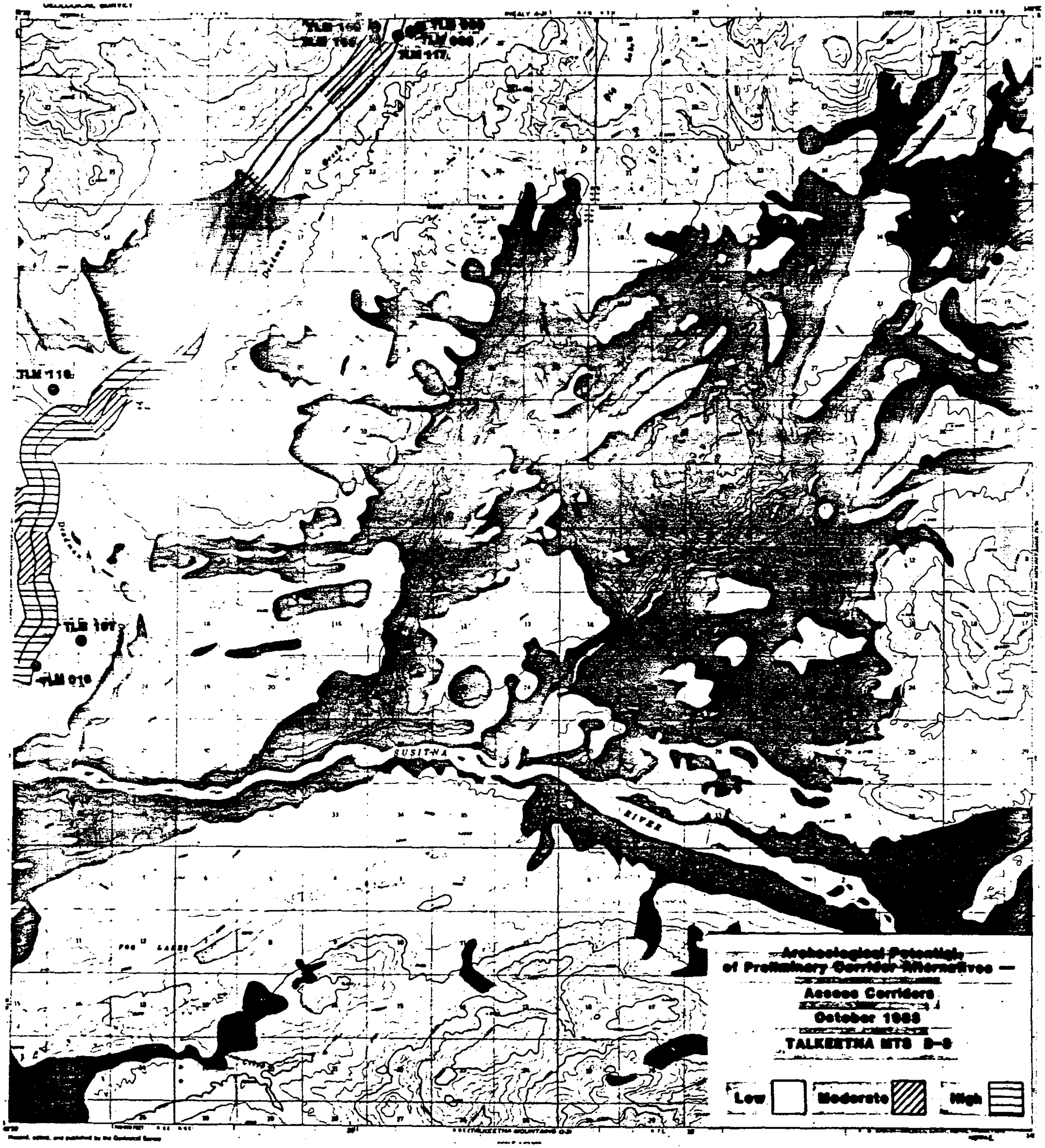


Figure A.16. Location of Sites Along Access Route, Talkeetna Mts. D-3.

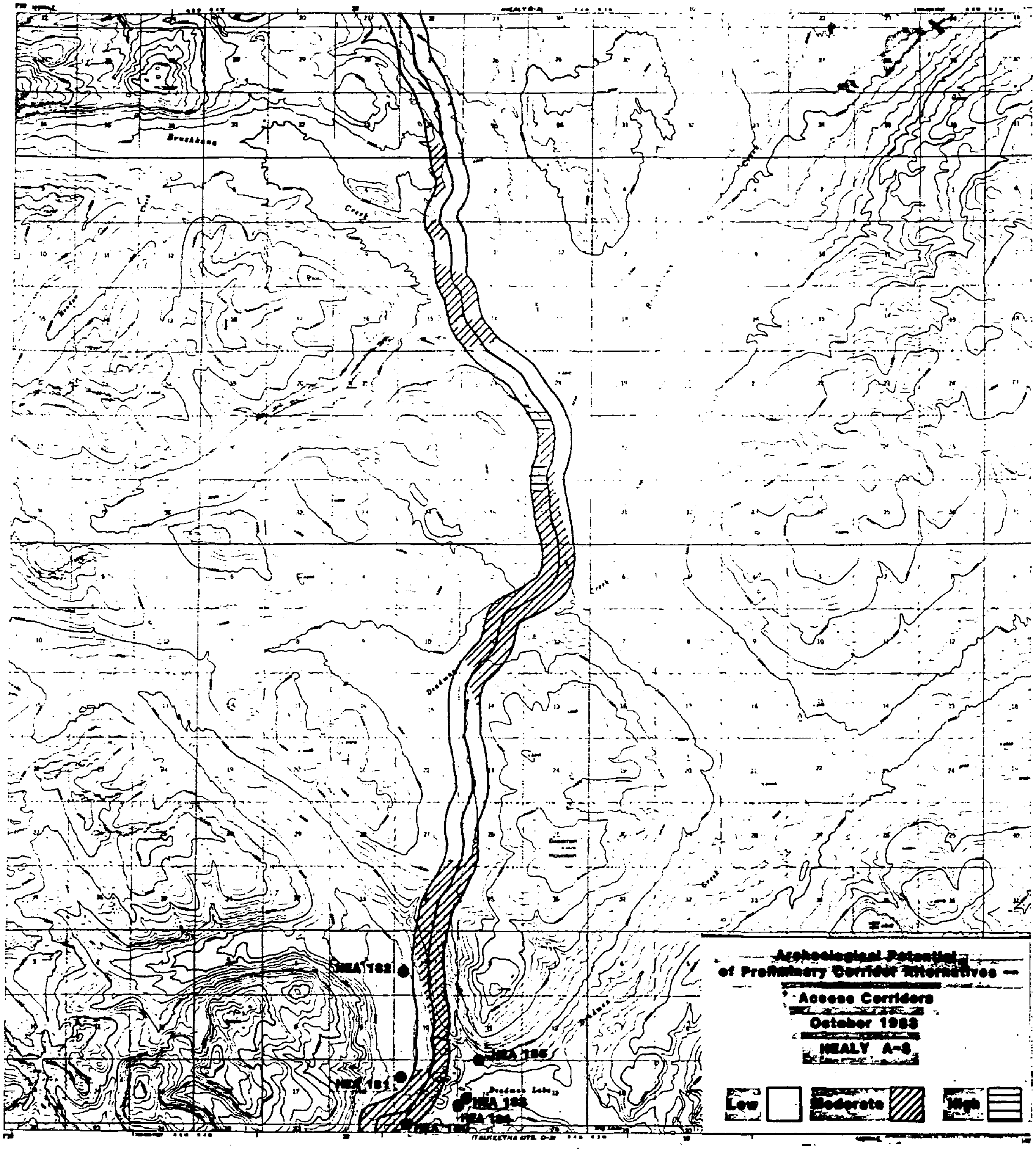


Figure A.17. Location of Sites Along Access Route, Healy A-3.

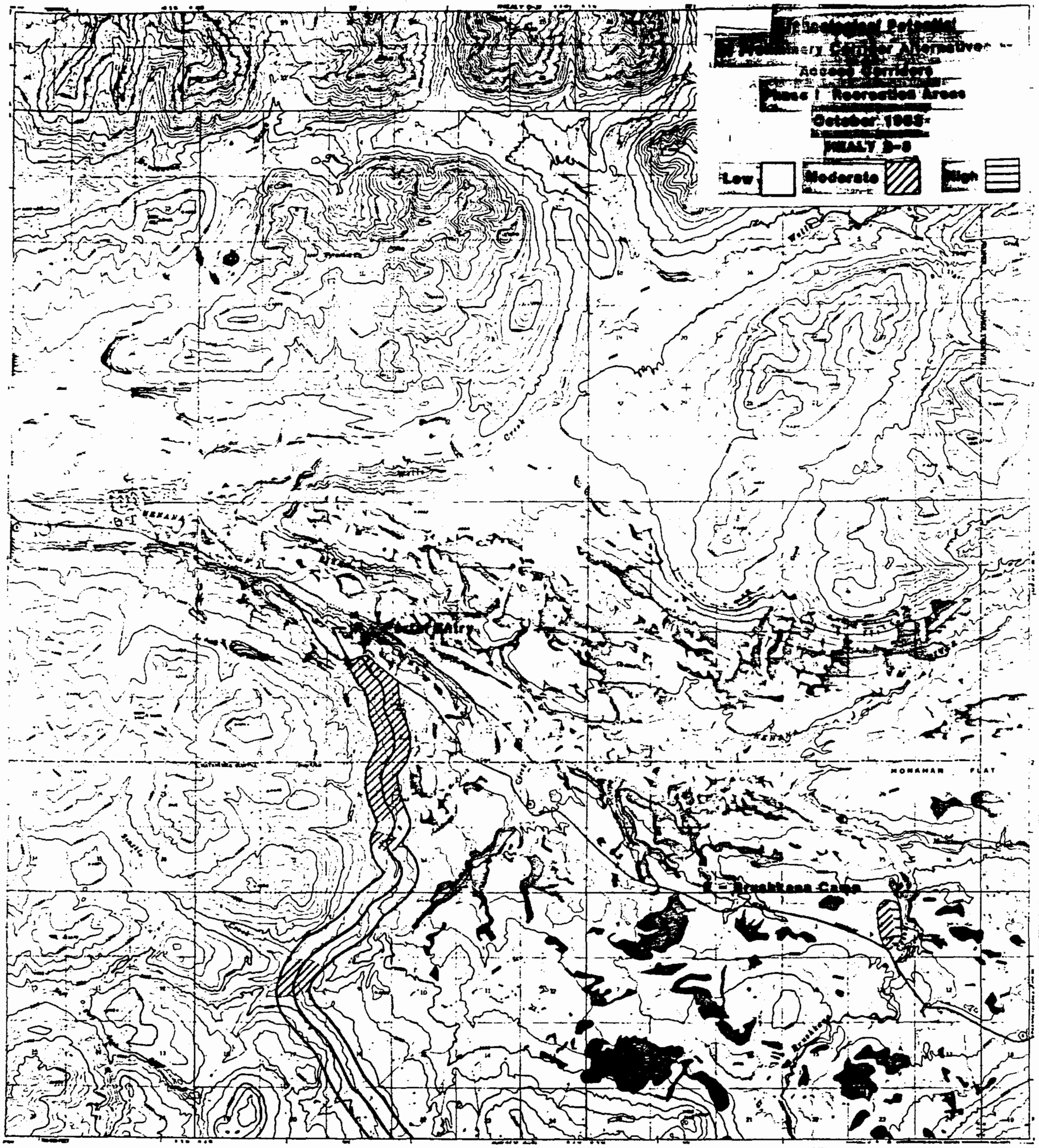


Figure A.18. Access Route and Phase I Recreation Areas, Healy B-3.

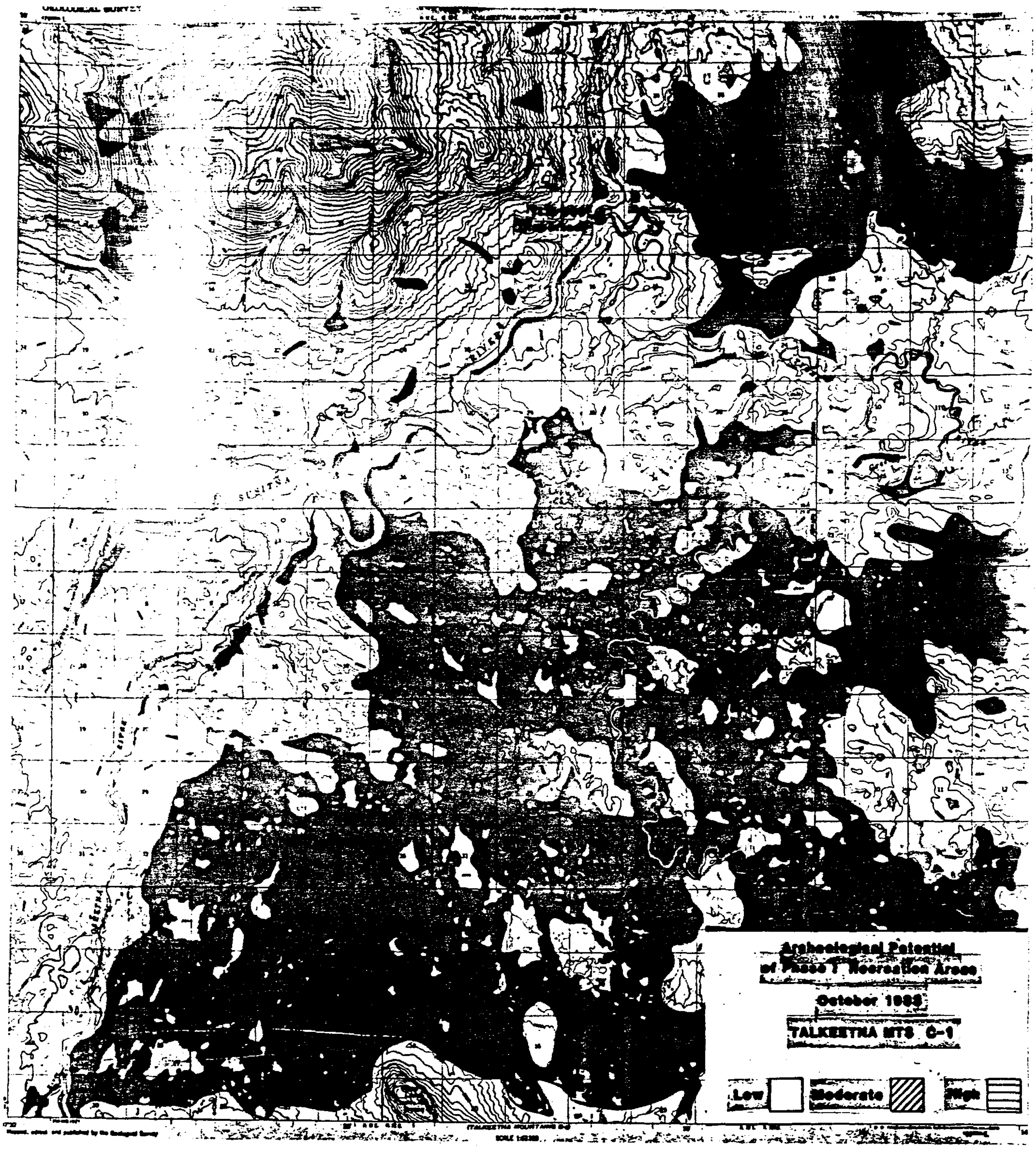


Figure A.19. Site Adjacent to Phase I Recreation Area, Talkeetna Mts. C-1.

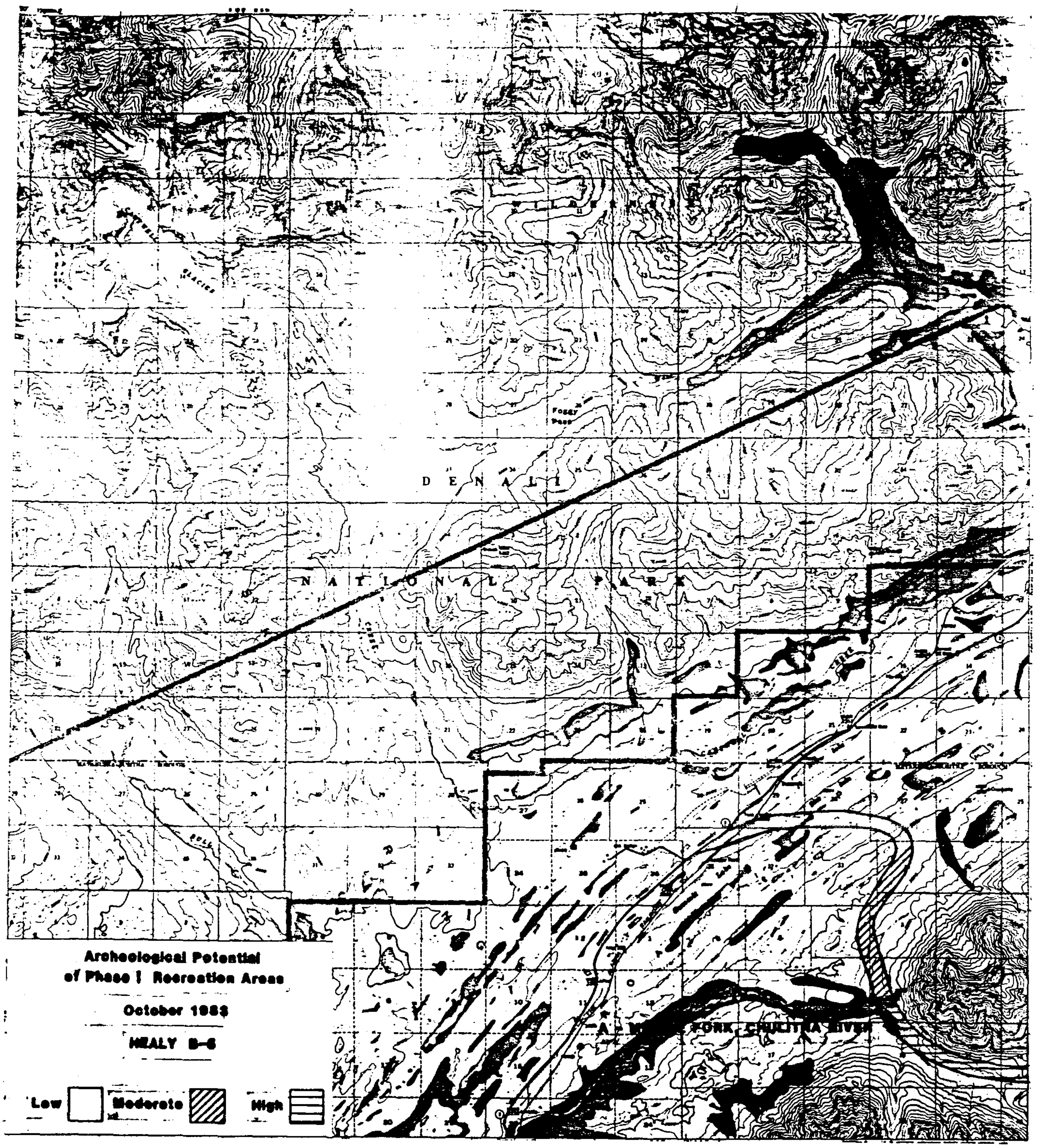


Figure A.20. Phase I Recreation Area, Healy B-5.

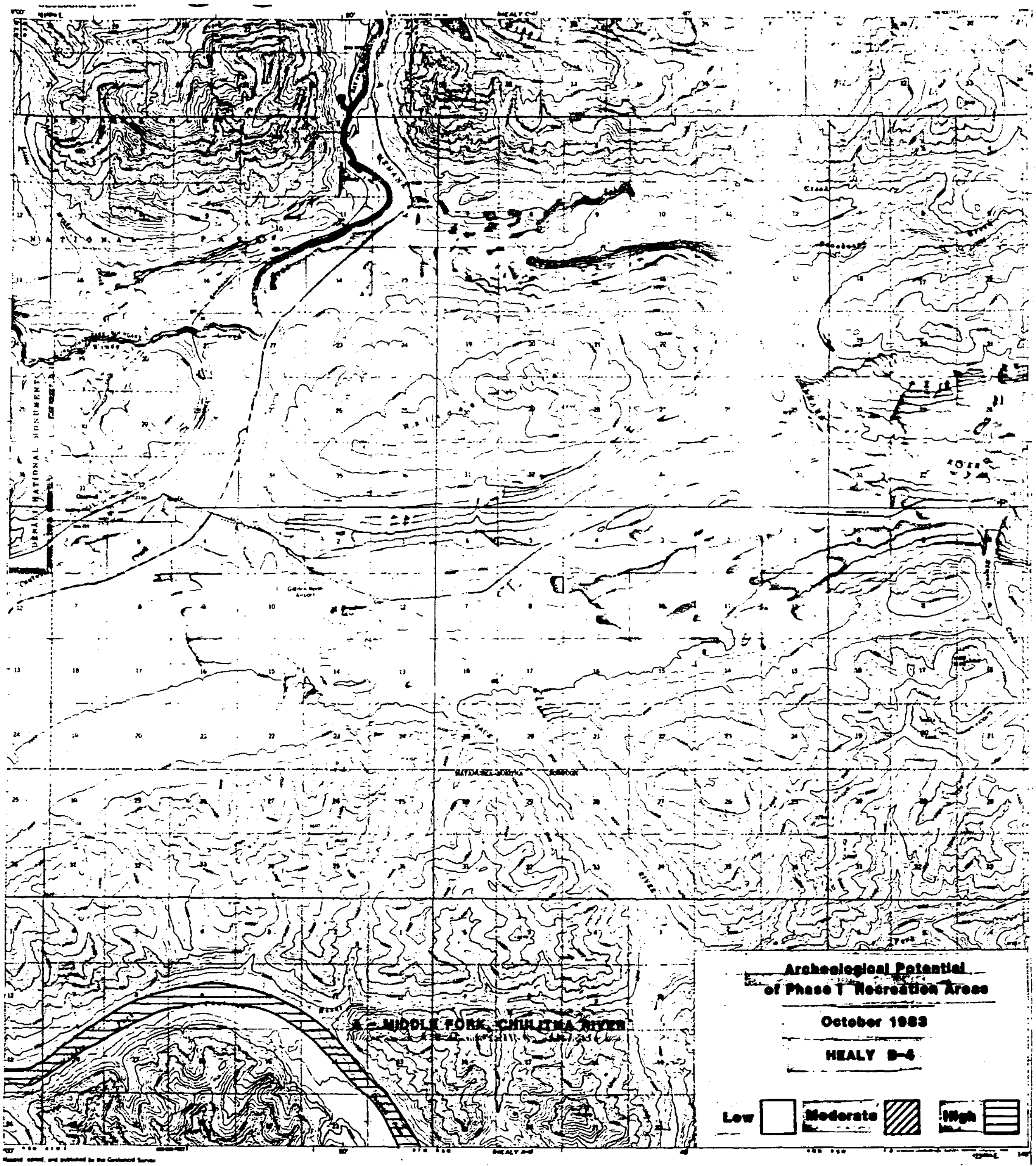


Figure A.21. Phase I Recreation Area, Healy B-4.

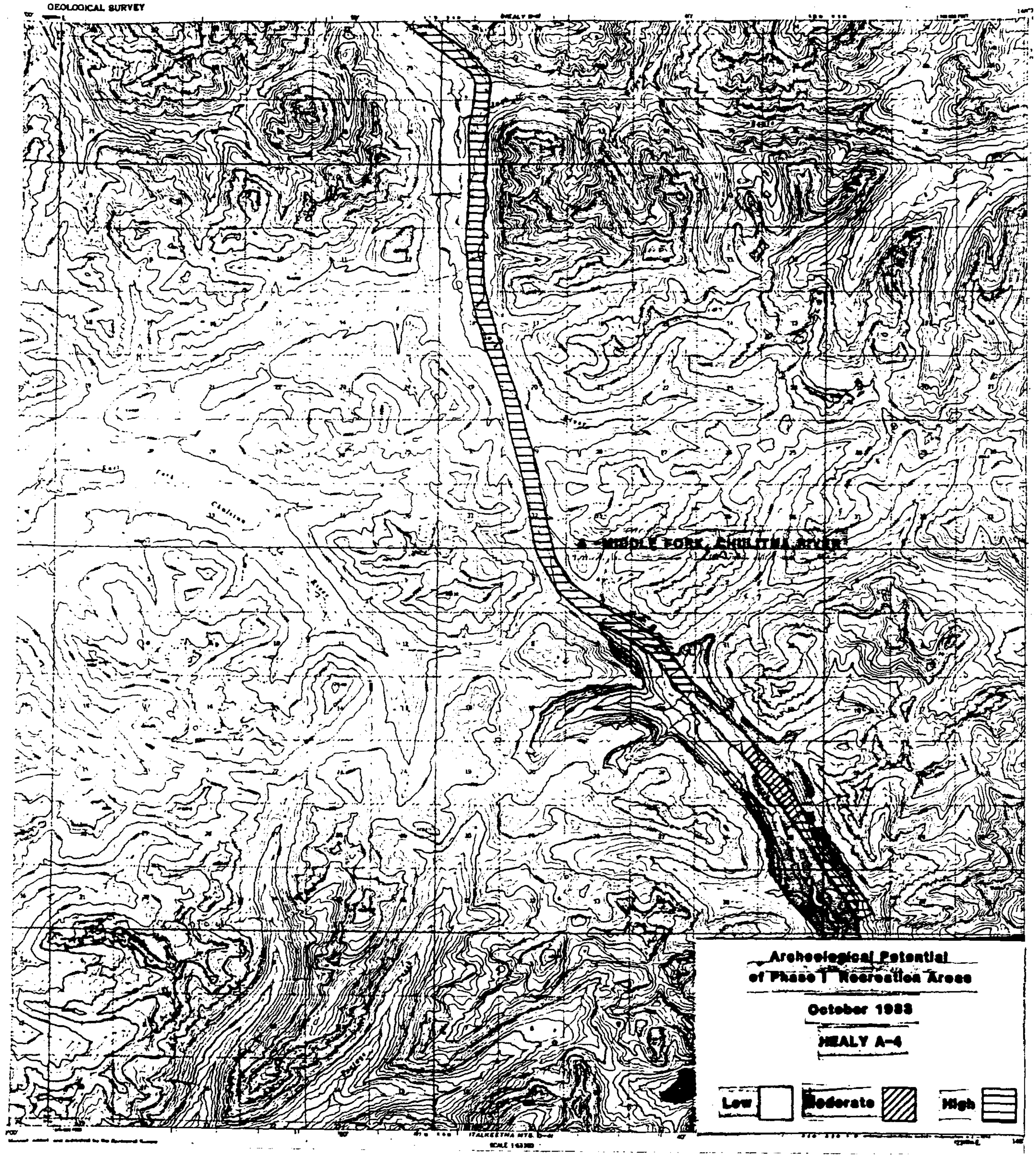


Figure A.22. Phase I Recreation Area, Healy A-4.

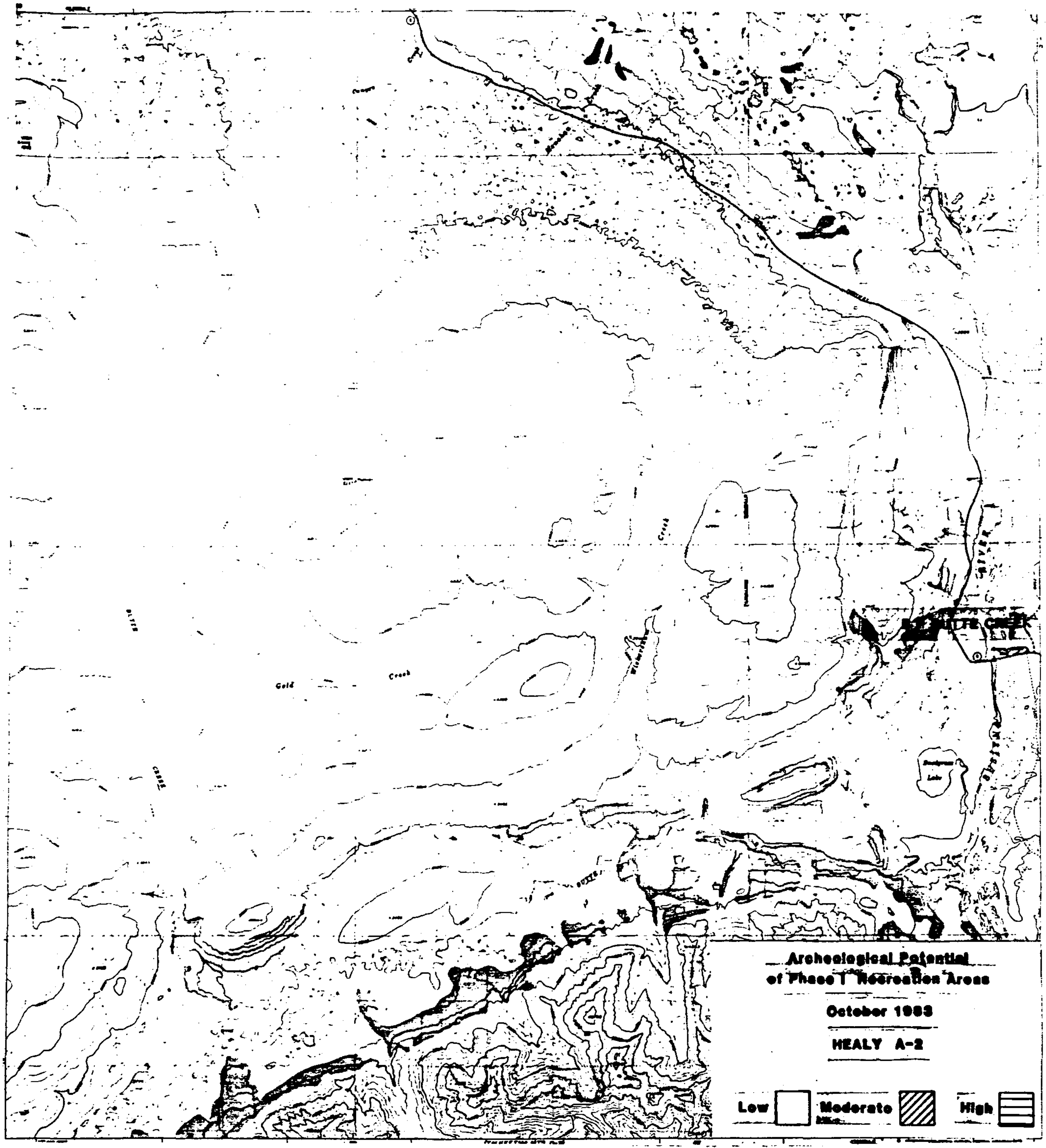


Figure A.23. Phase I Recreation Area, Healy A-2.

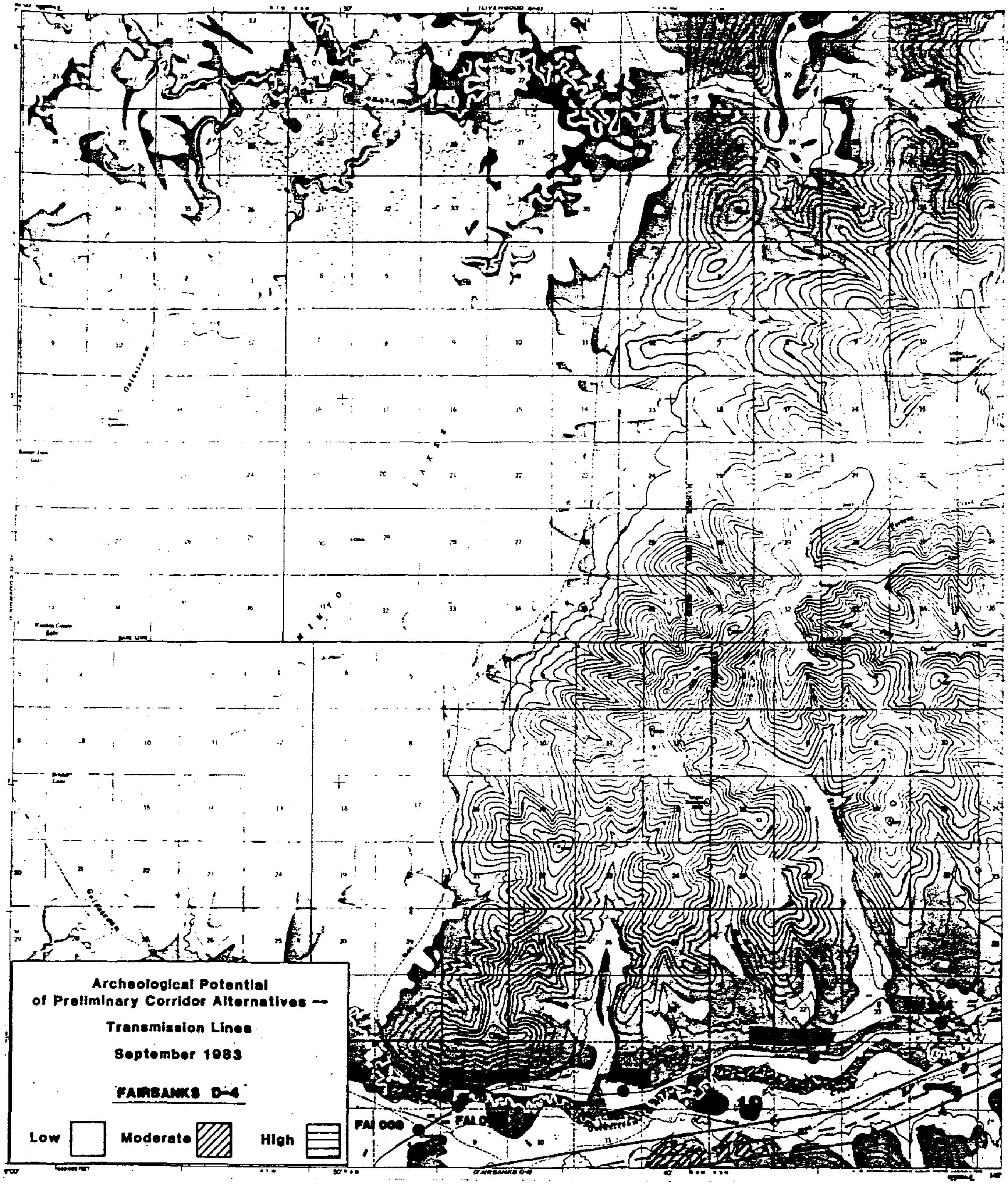


Figure A.24. Sites Along Transmission Route, Fairbanks D-4.

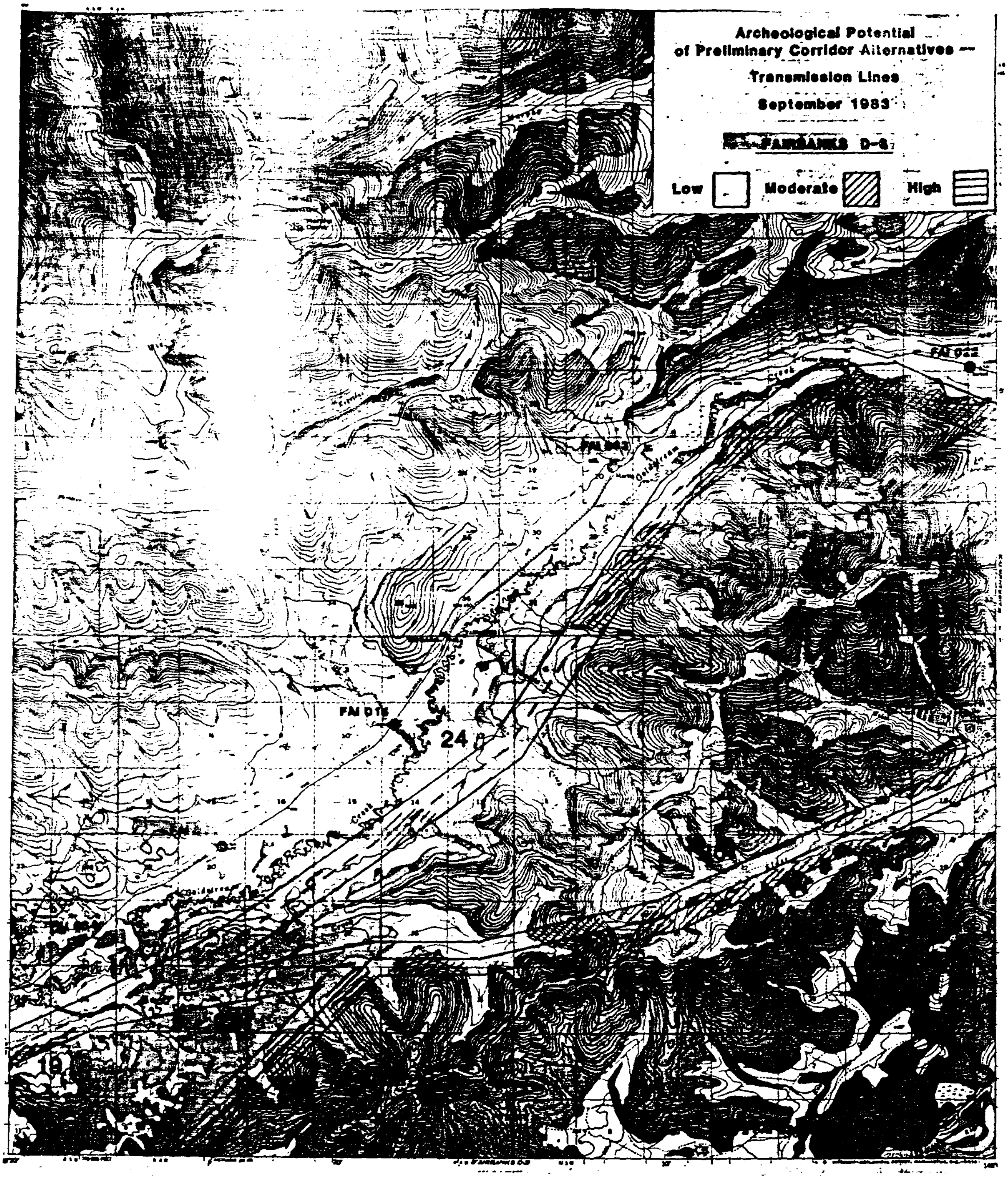


Figure A.25. Sites Along Transmission Routes, Fairbanks D-3.

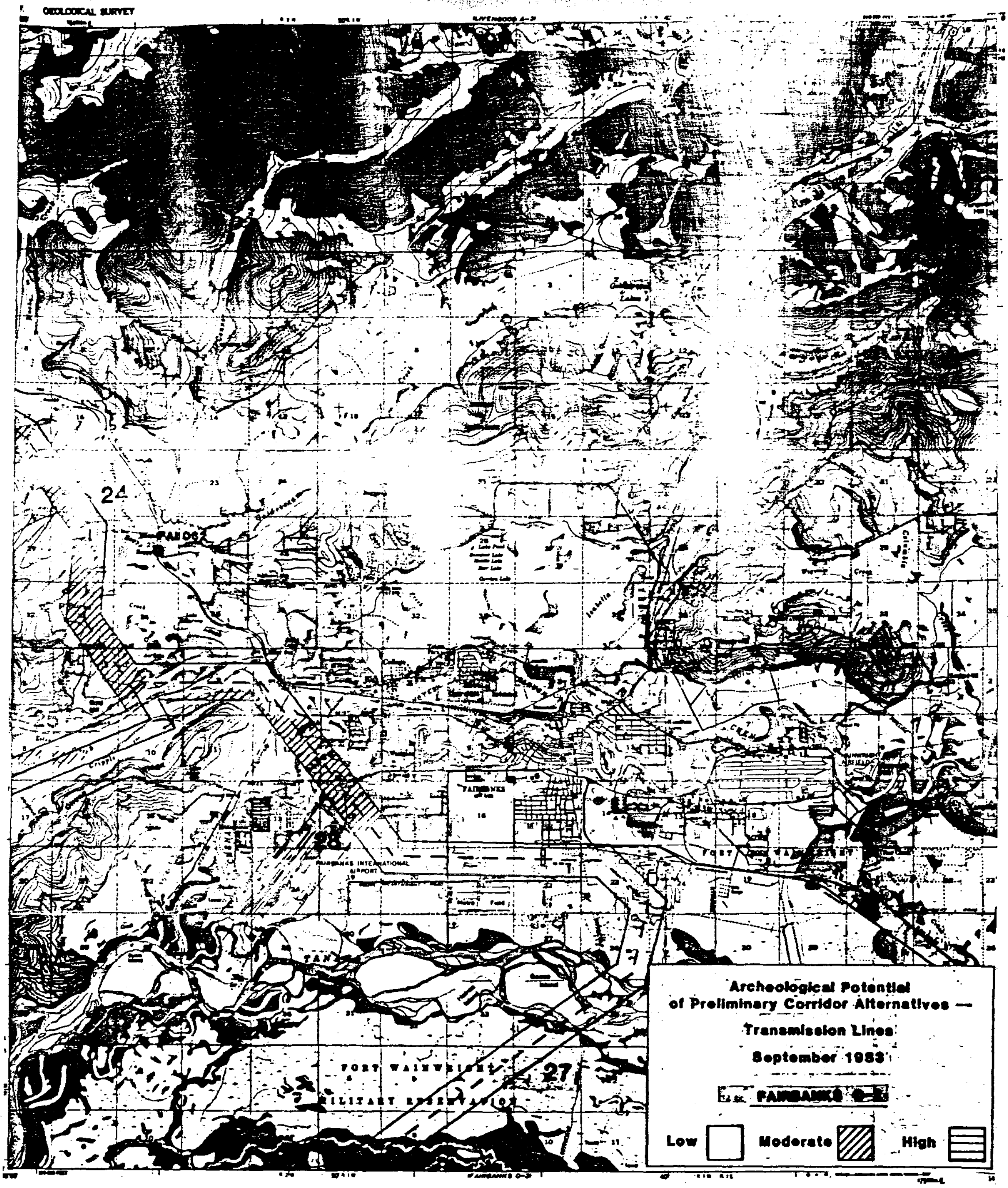


Figure A.26. Site Along Transmission Routes, Fairbanks D-2.

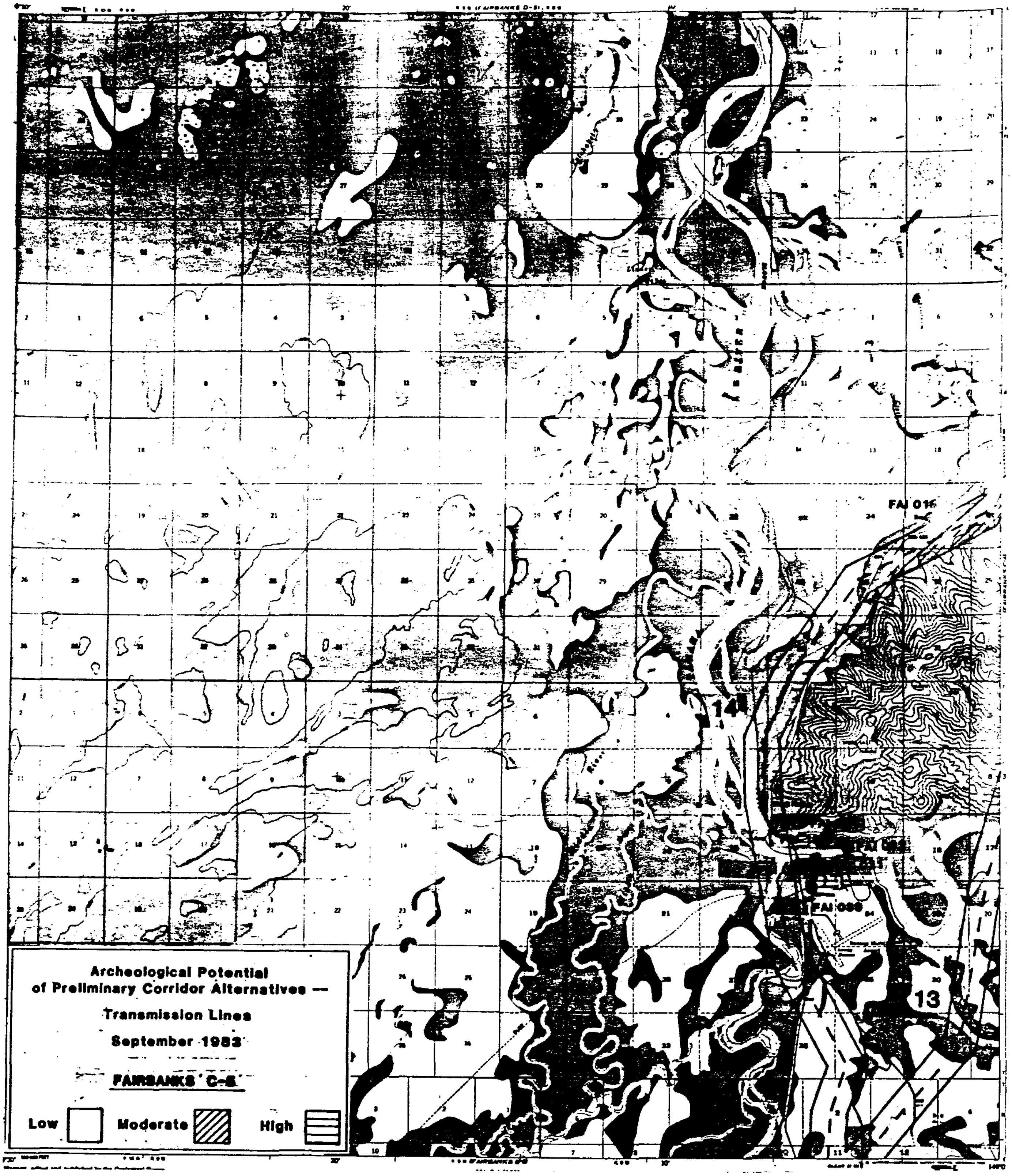


Figure A.27. Sites Along Transmission Routes, Fairbanks C-5.

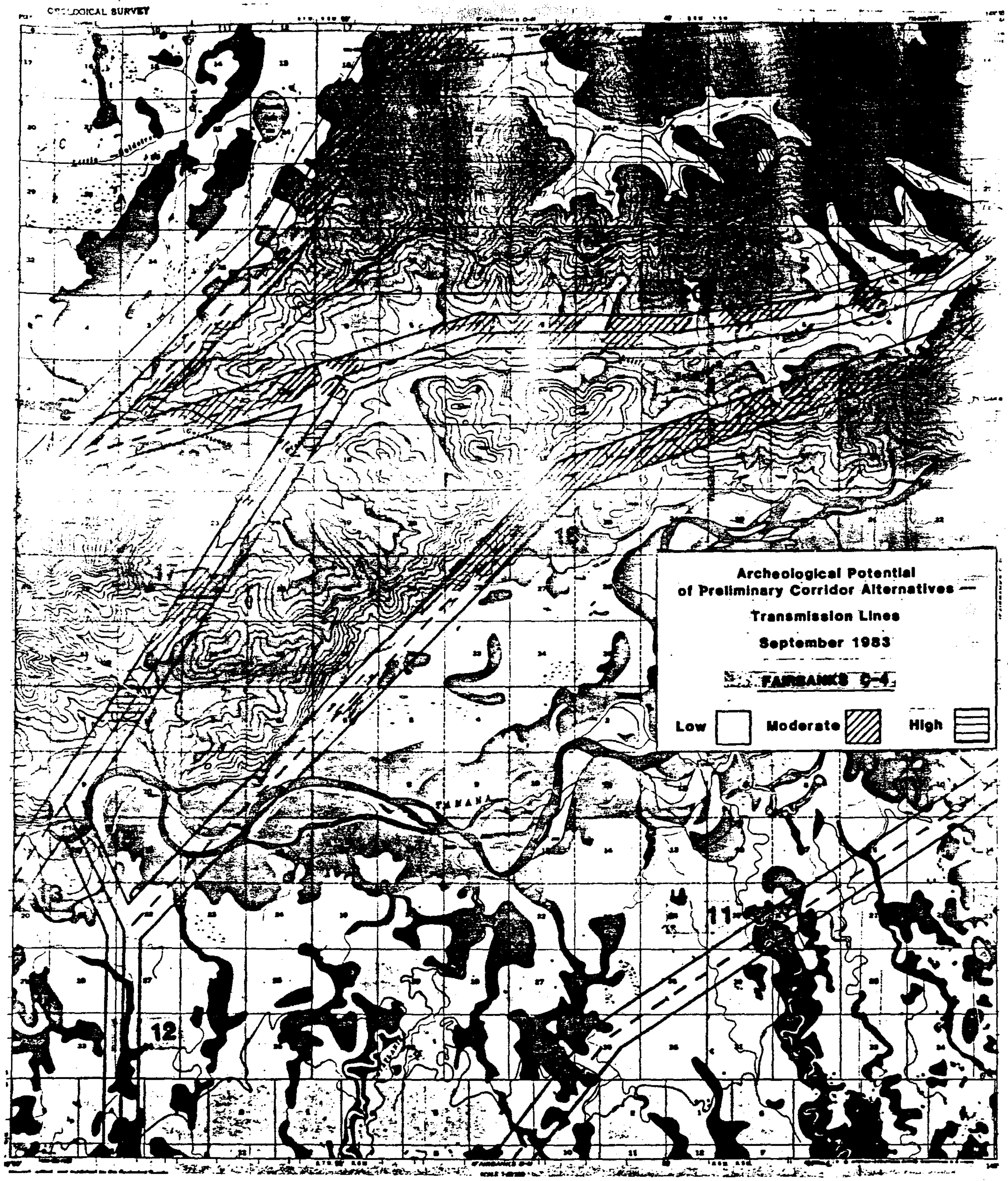


Figure A.28. Site Along Transmission Routes, Fairbanks C-4.

Figure A.29. Transmission Routes, Fairbanks C-3.

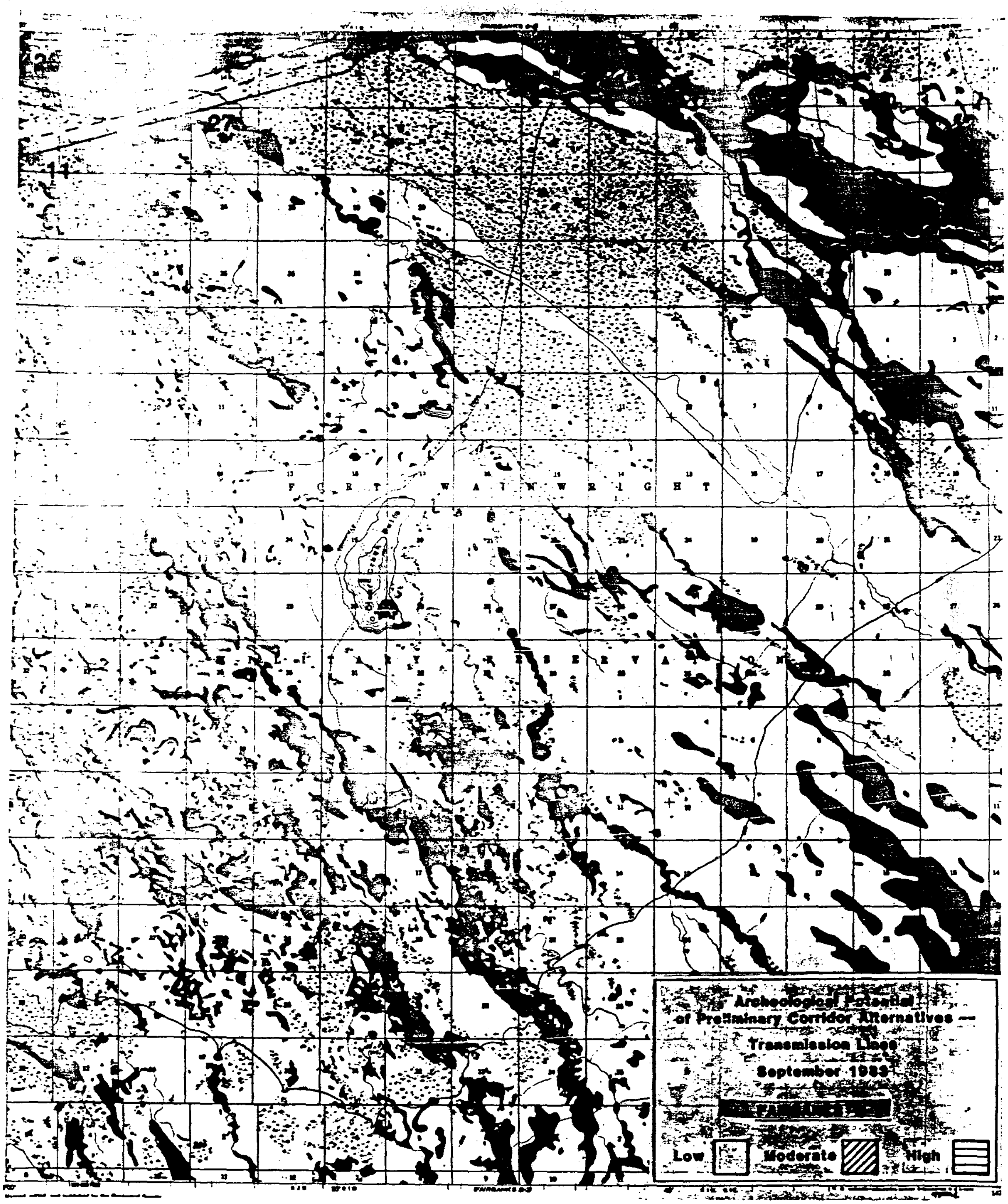


Figure A.30. Transmission Routes, Fairbanks C-2.

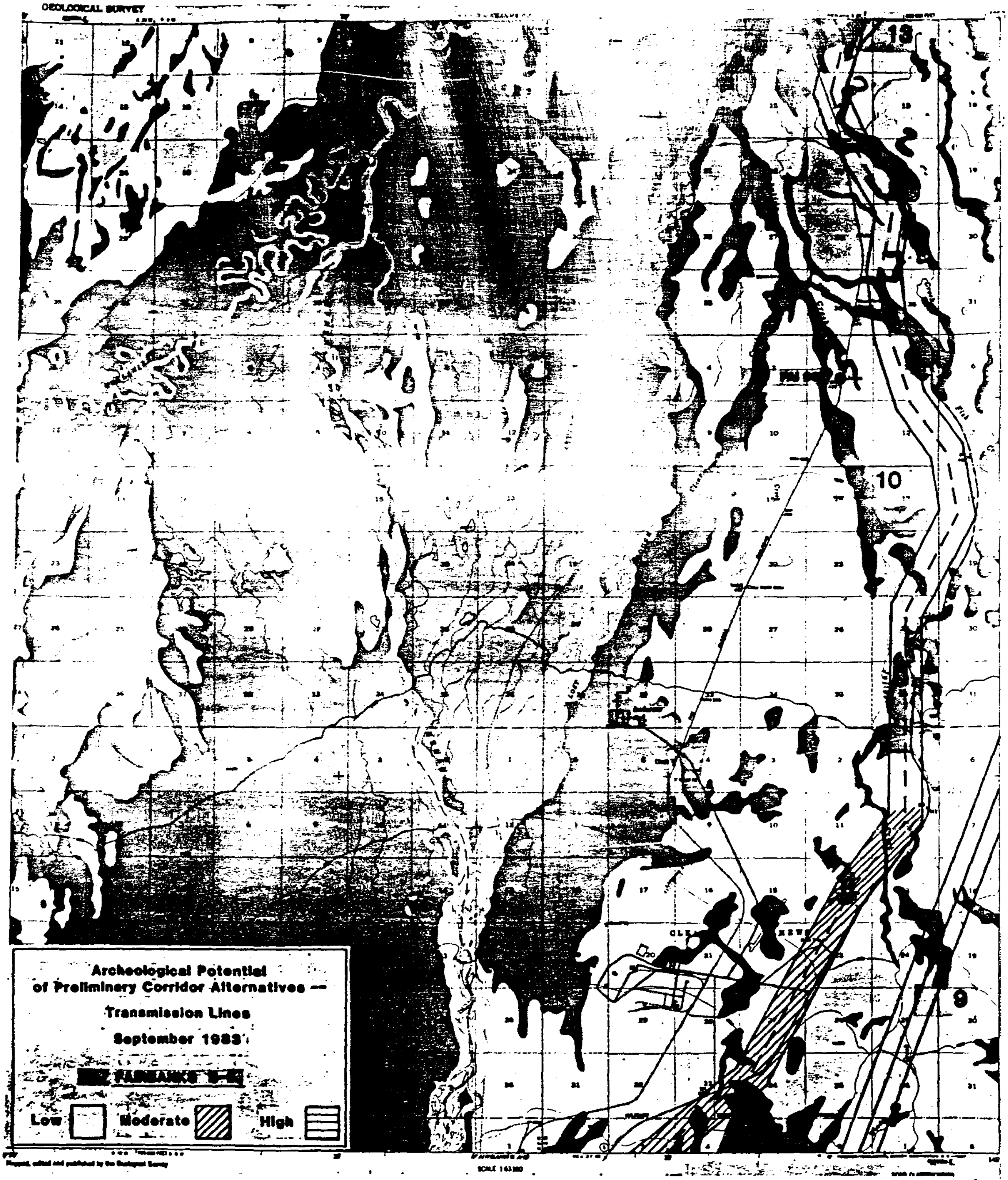


Figure A.31. Site Along Transmission Routes, Fairbanks B-5.

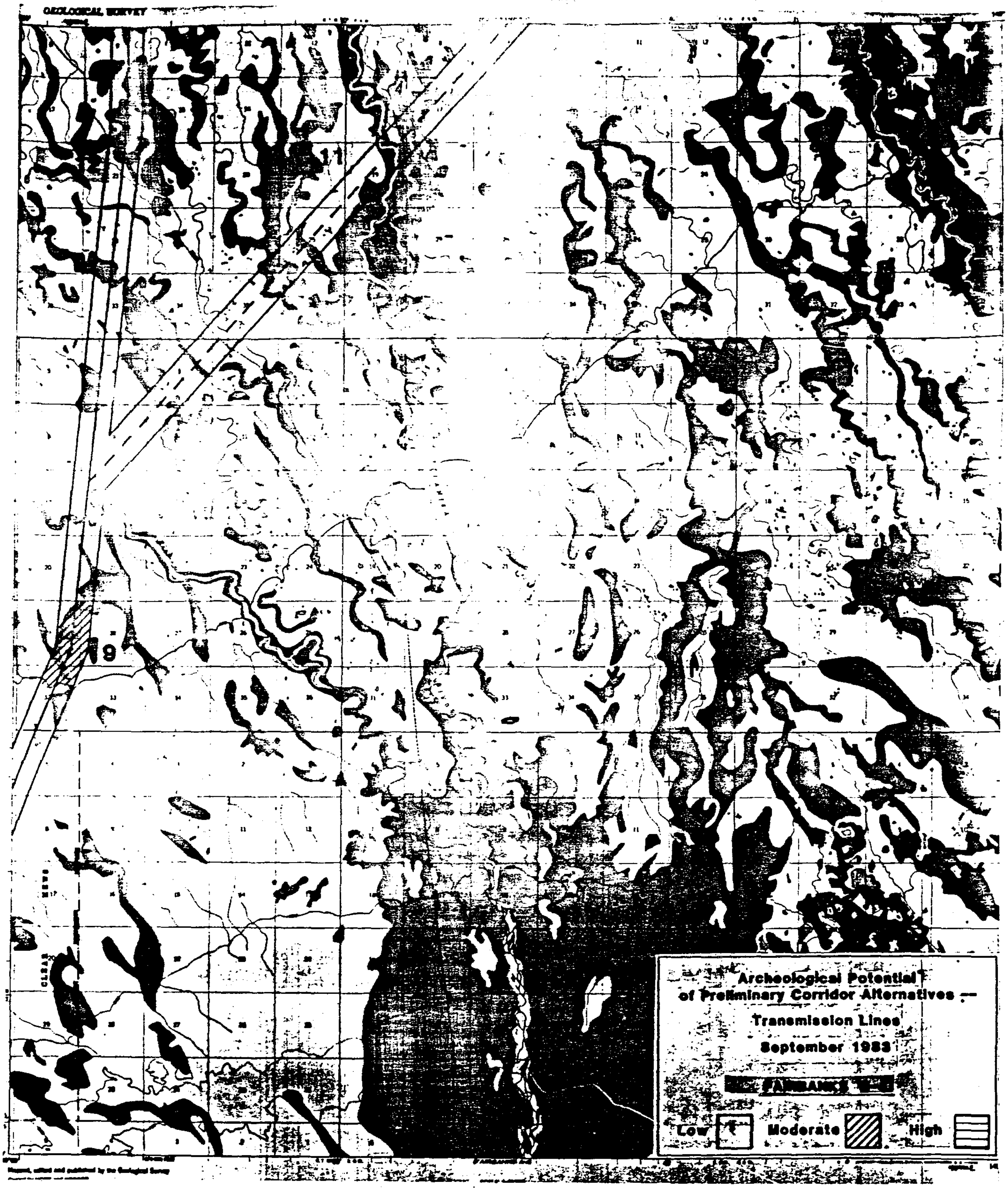


Figure A.32. Transmission Routes, Fairbanks B-4.

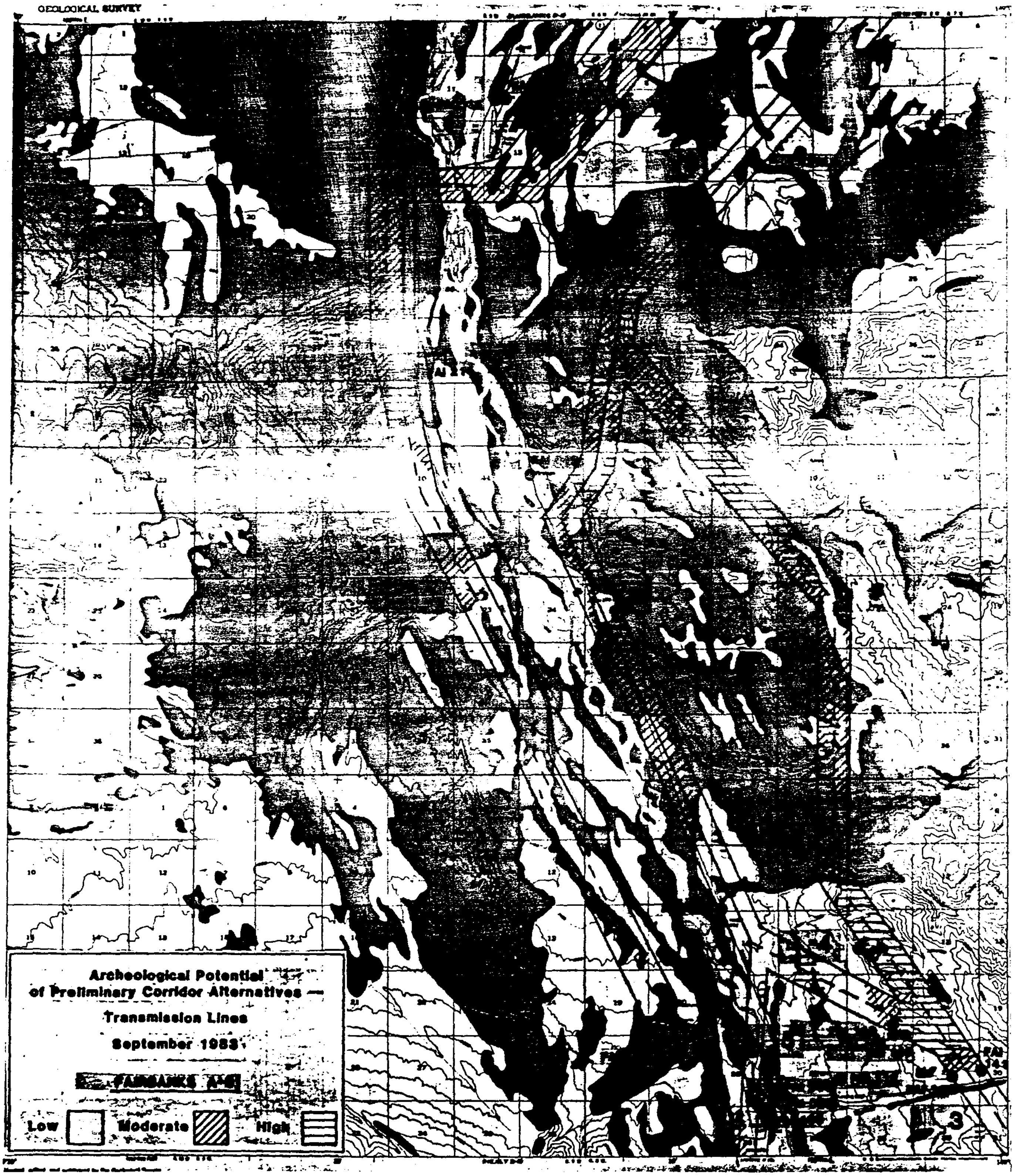


Figure A.33. Sites Along Transmission Routes, Fairbanks A-5.

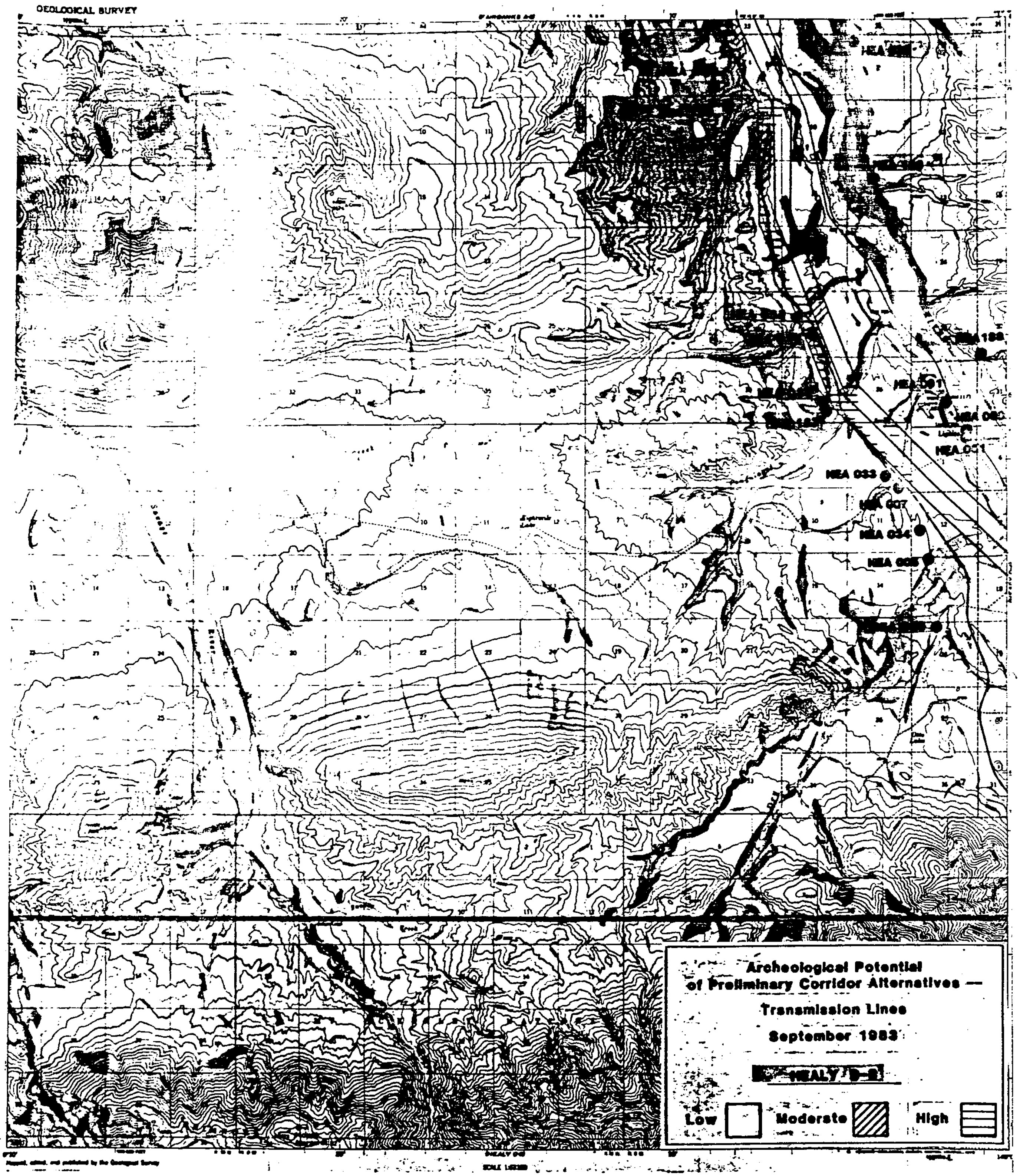


Figure A.34. Sites Along Transmission Routes, Healy D-5.

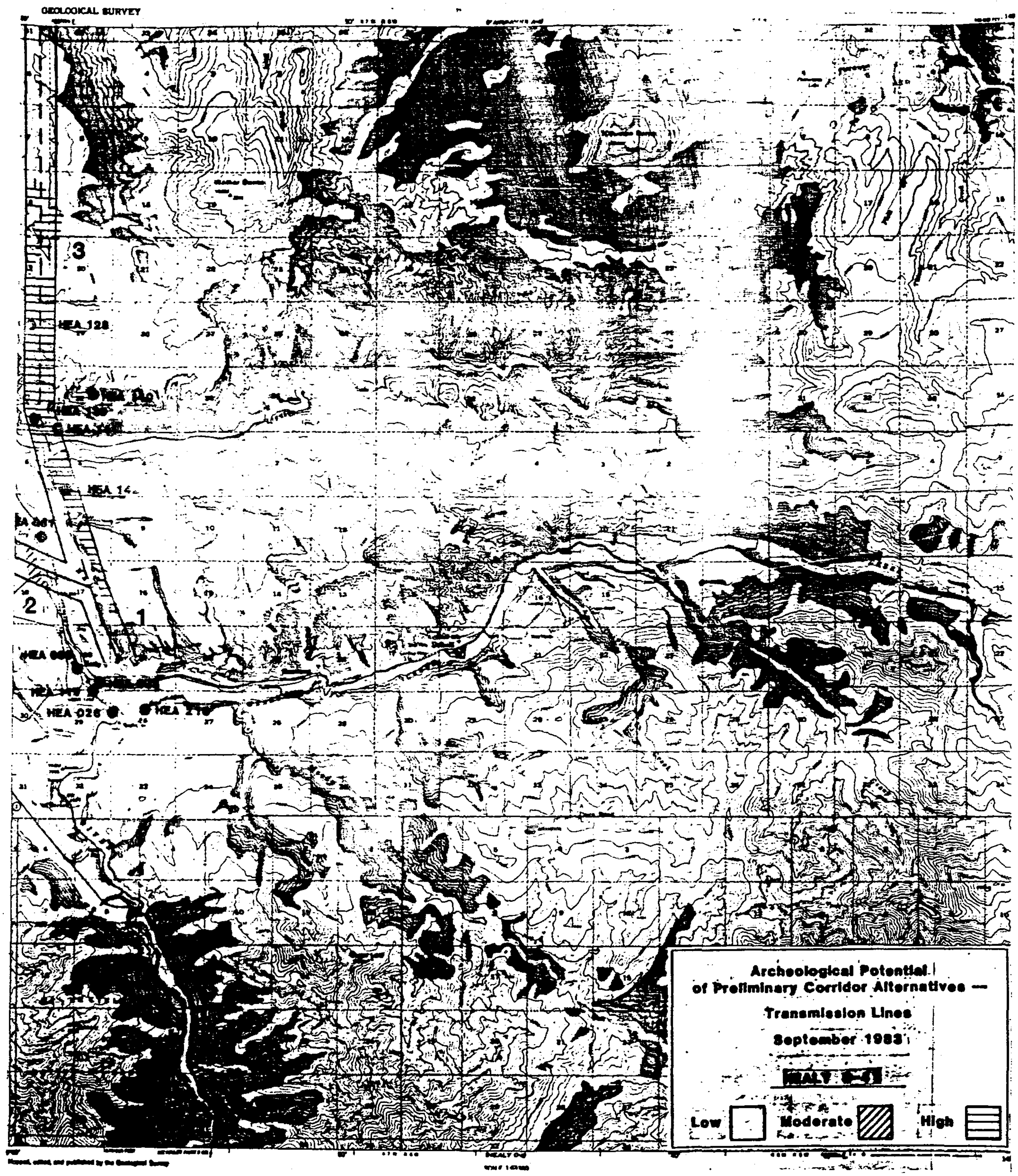


Figure A.35. Sites Along Transmission Routes, Healy D-4.

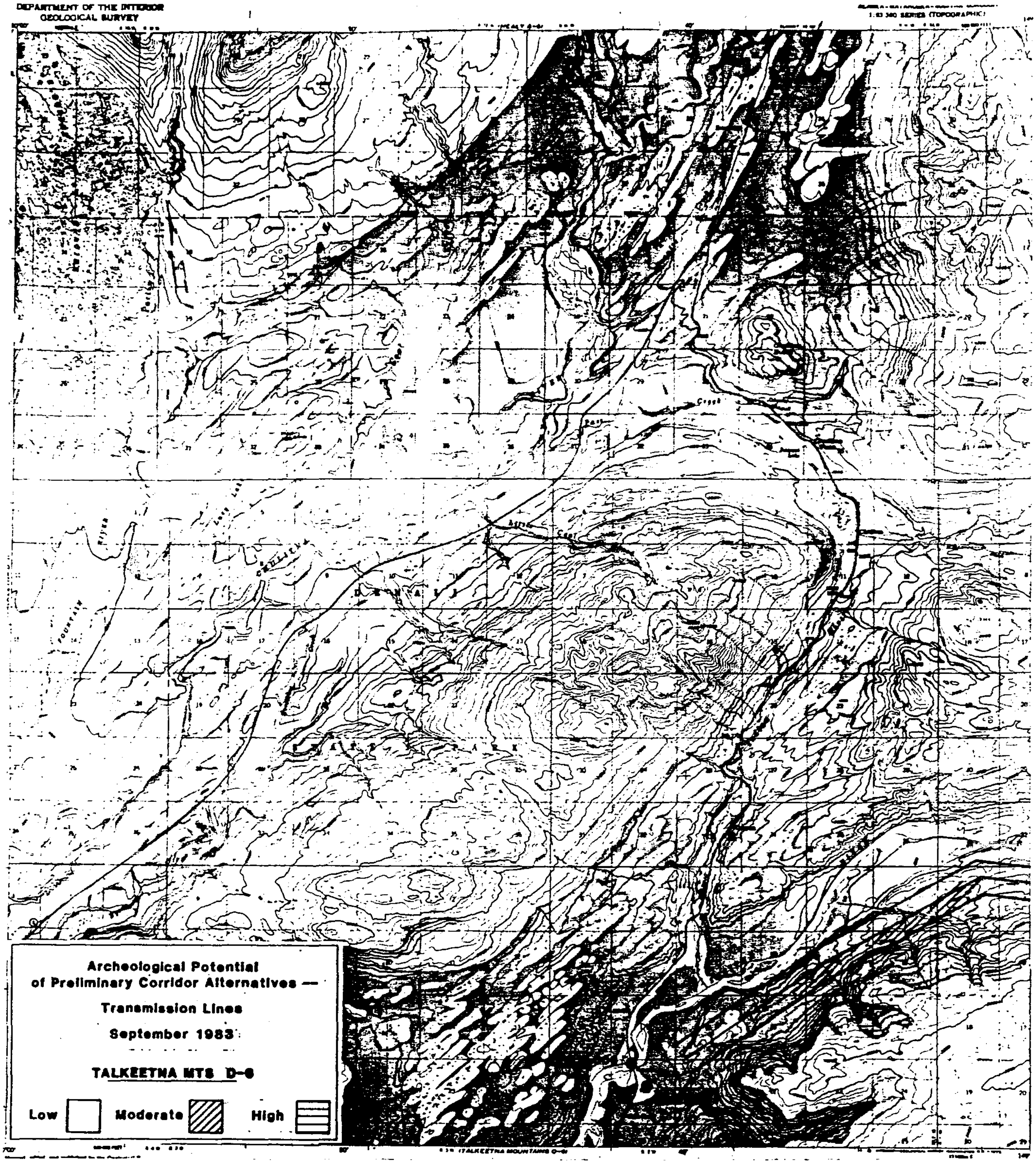


Figure A.36. Sites Along Transmission Route, Talkeetna Mts. D-6.

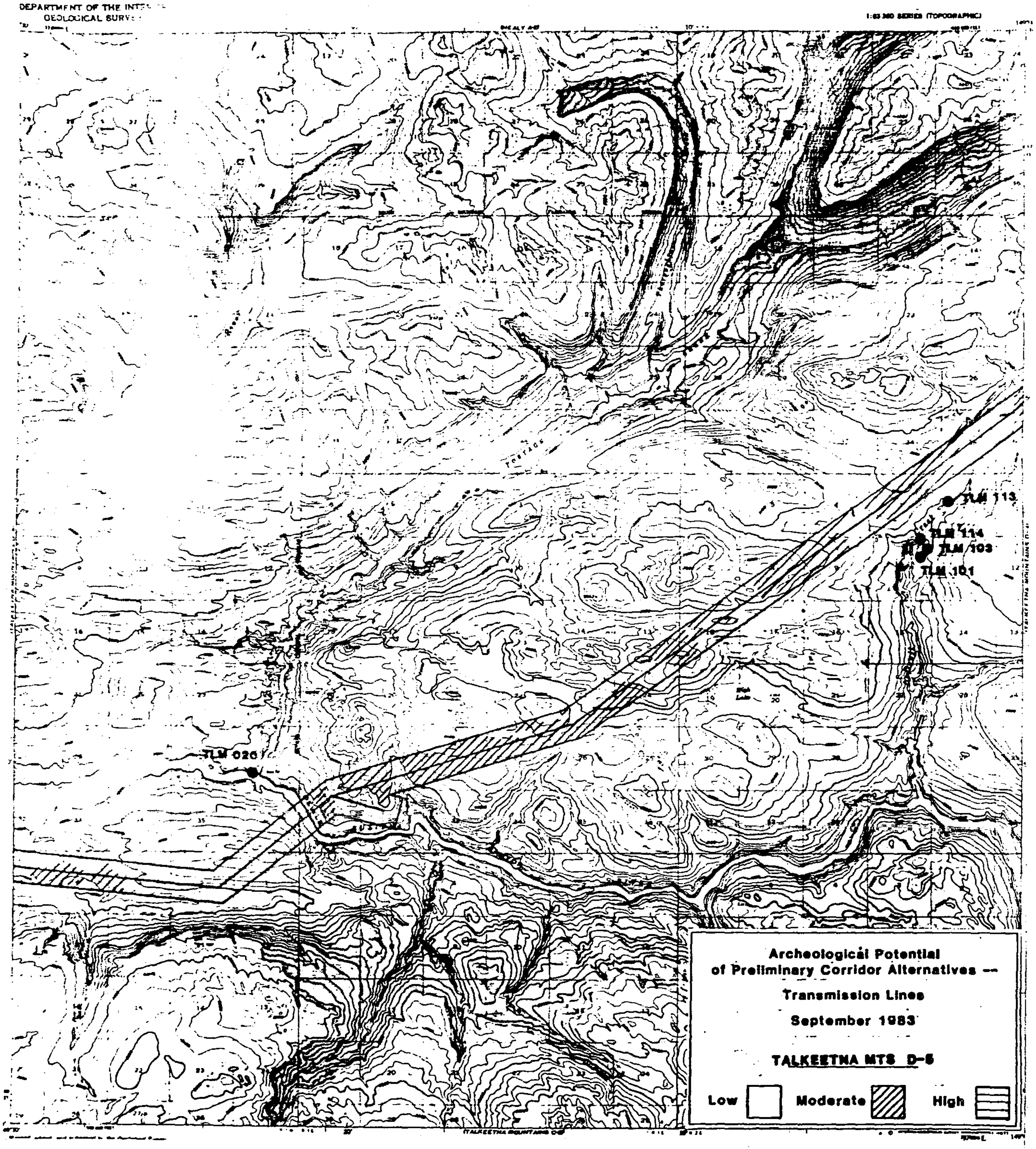


Figure A.37. Sites Along Transmission Route, Talkeetna Mts. D-5.

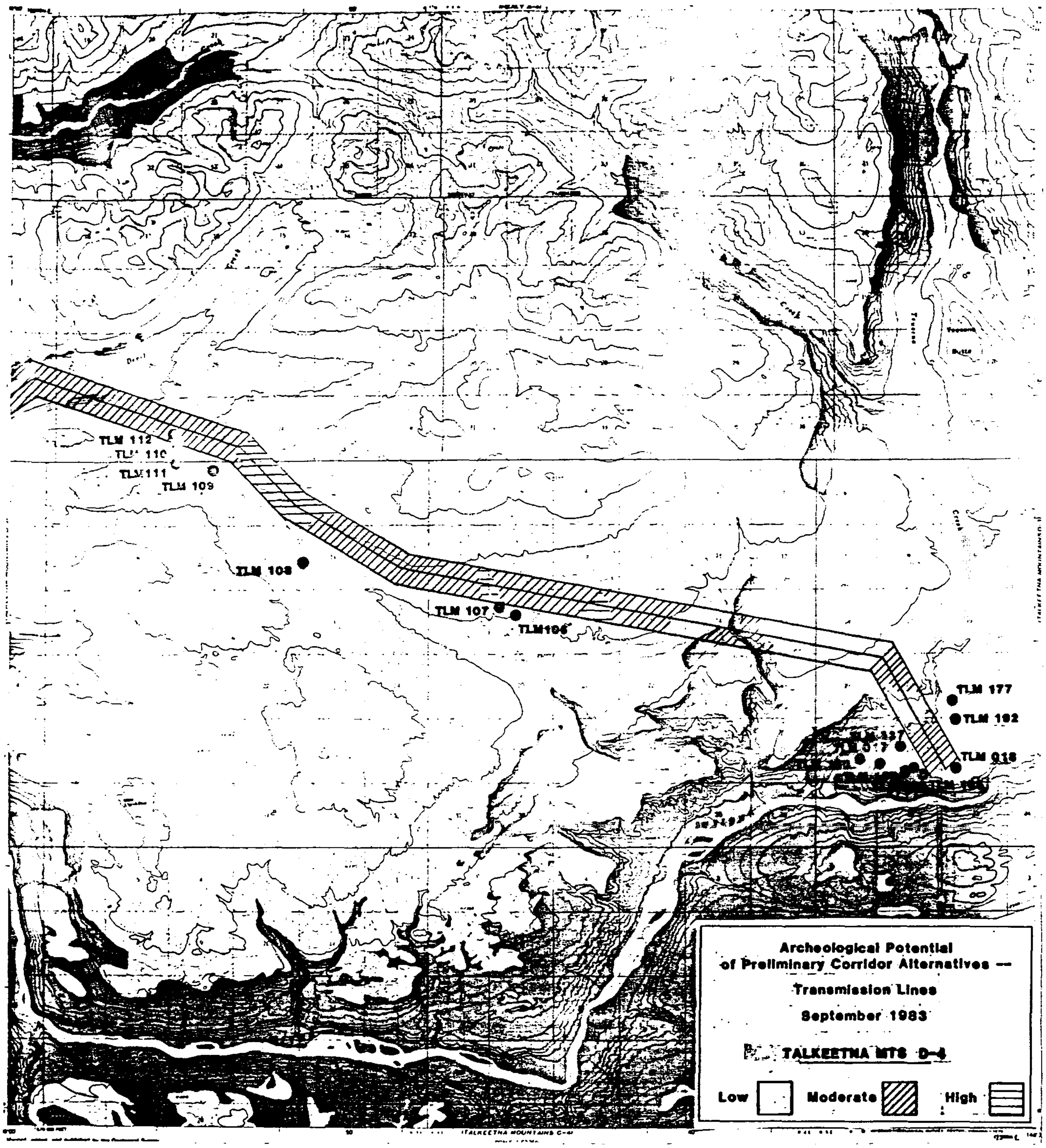


Figure A.38. Sites Along Transmission Route, Talkeetna Mts. D-4.

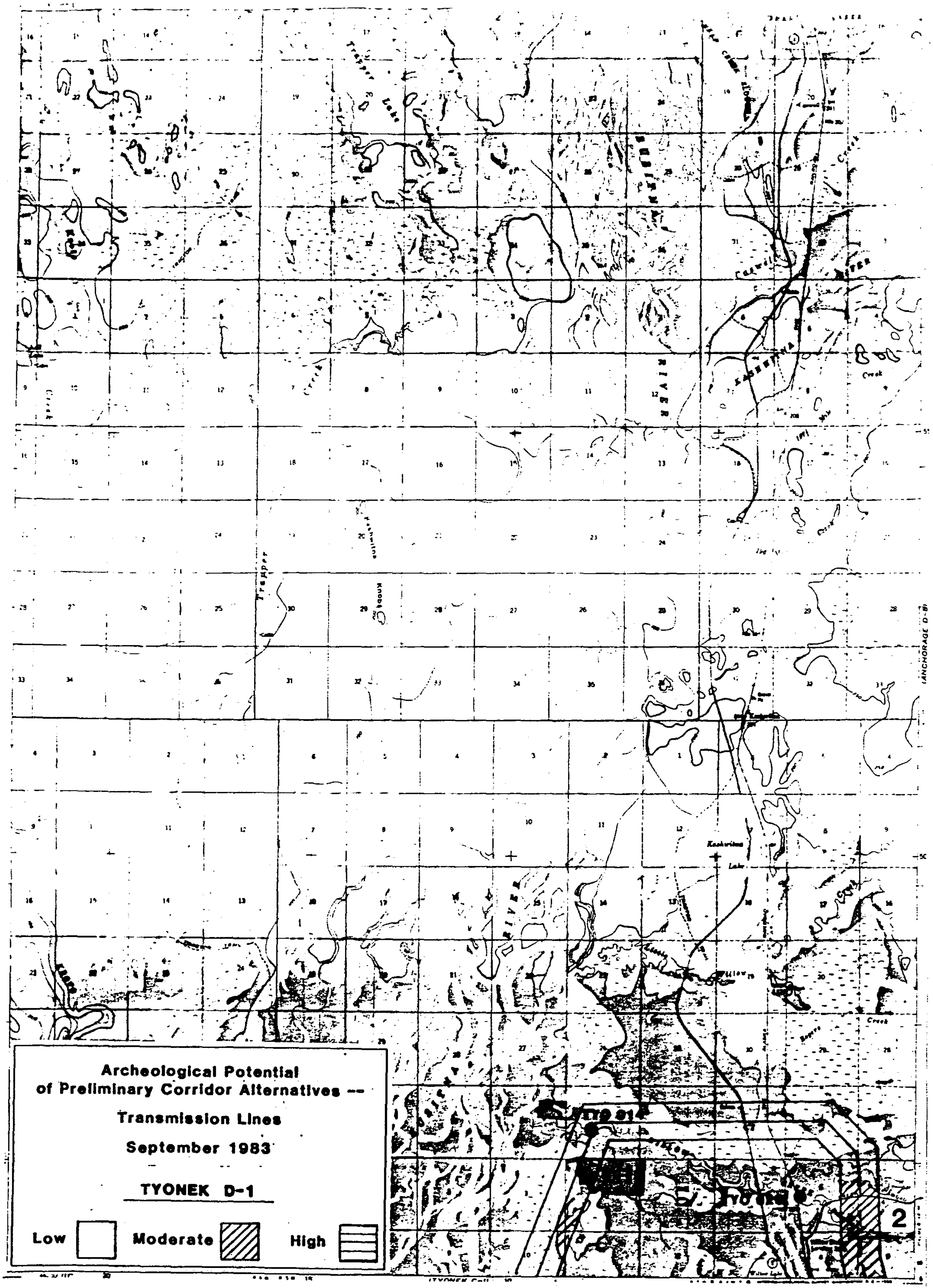


Figure A.39. Sites Along Transmission Routes, Tyonek D-1.

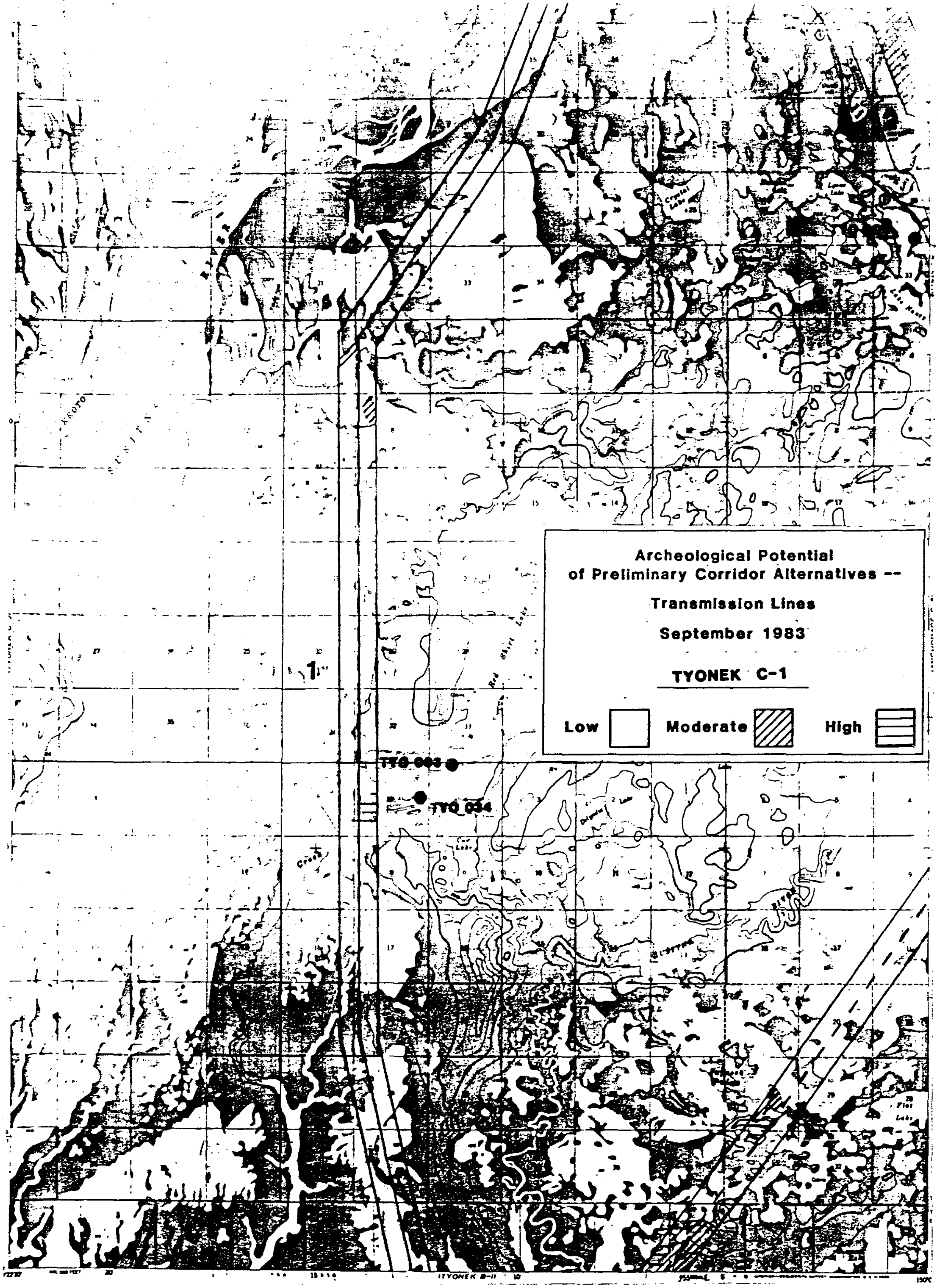


Figure A.40. Sites Along Transmission Routes, Tyonek C-1.

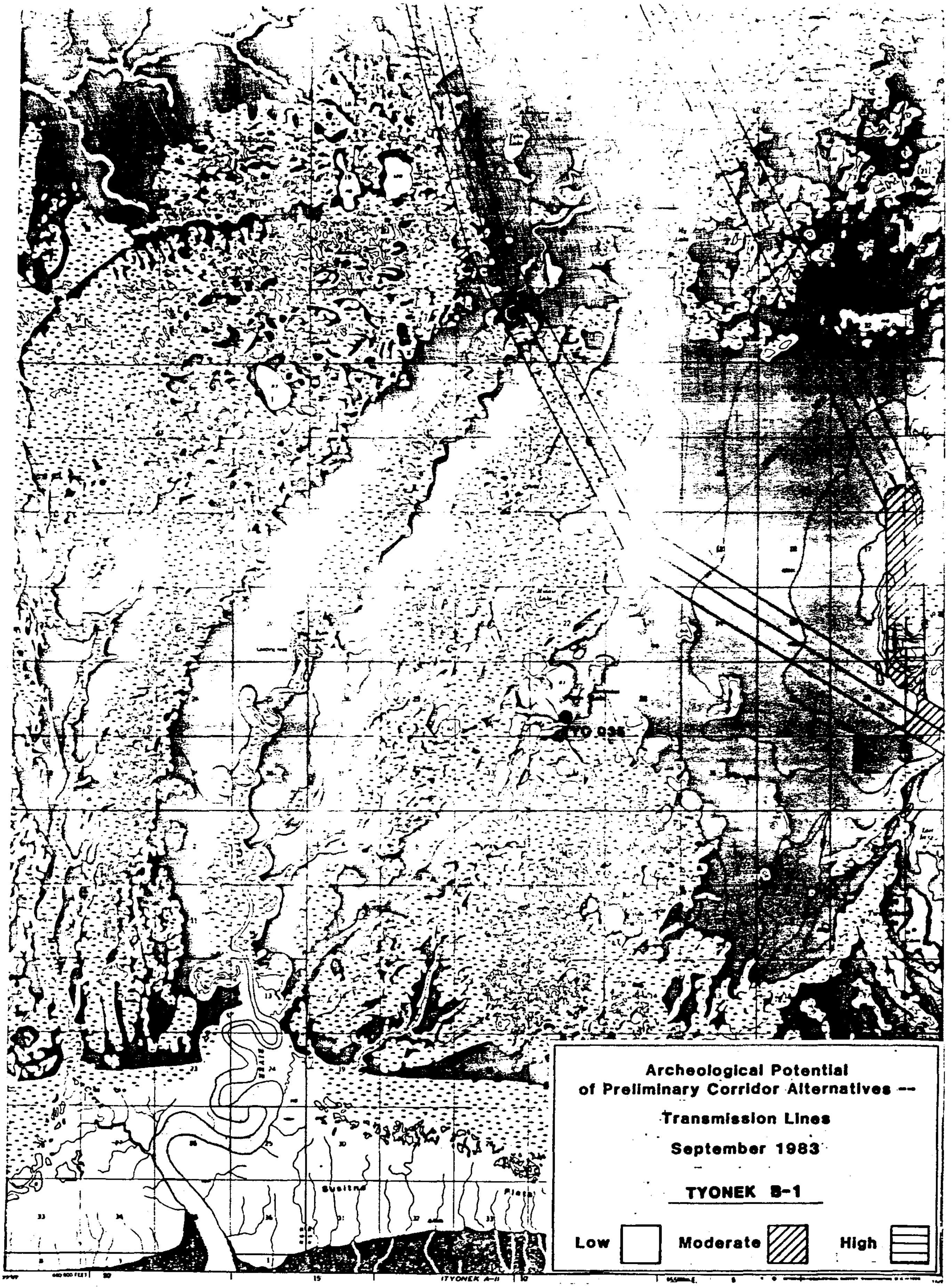


Figure A.41. Sites Along Transmission Routes, Tyonek B-1.

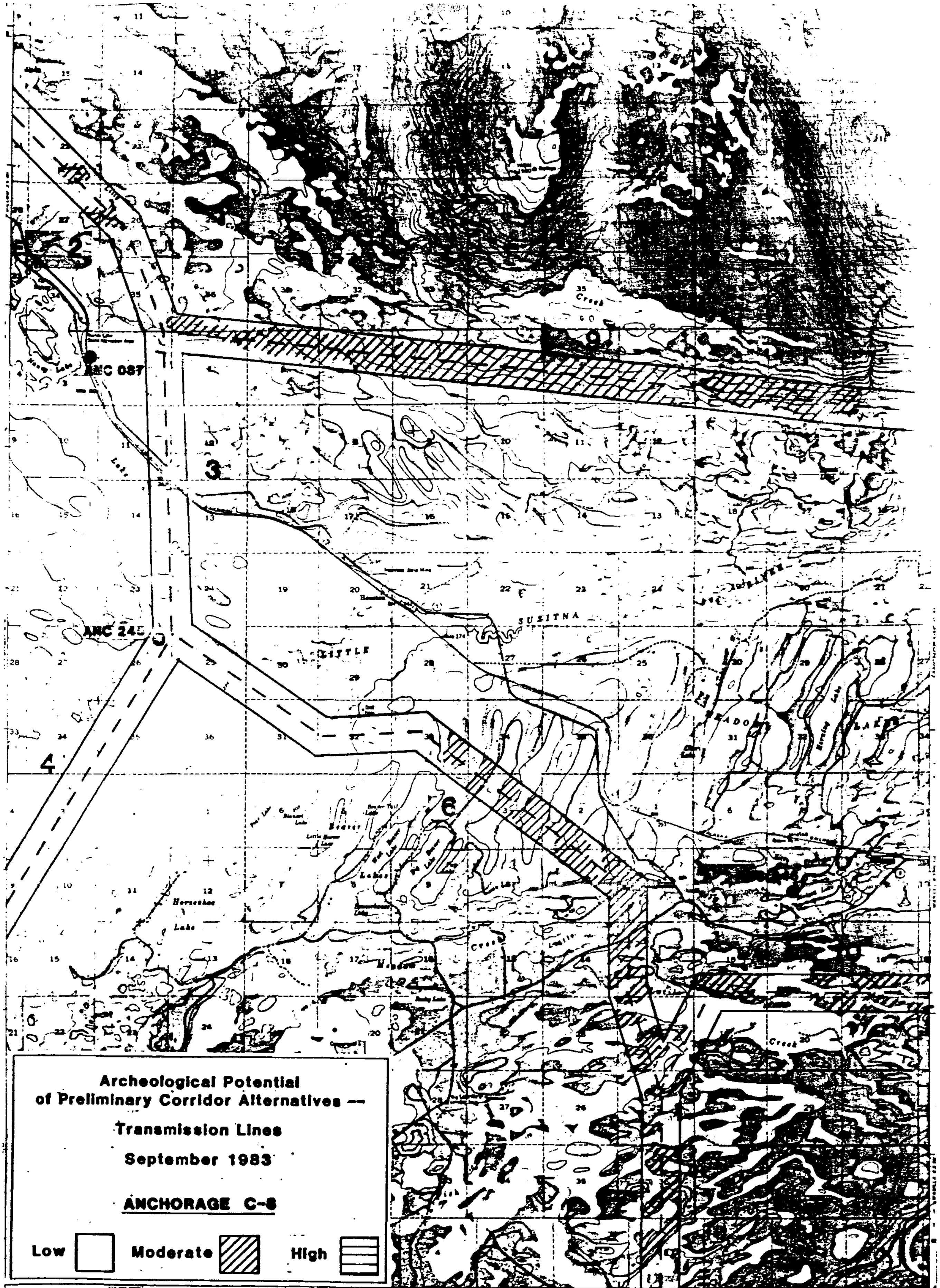


Figure A.42. Sites Along Transmission Routes, Anchorage C-8.

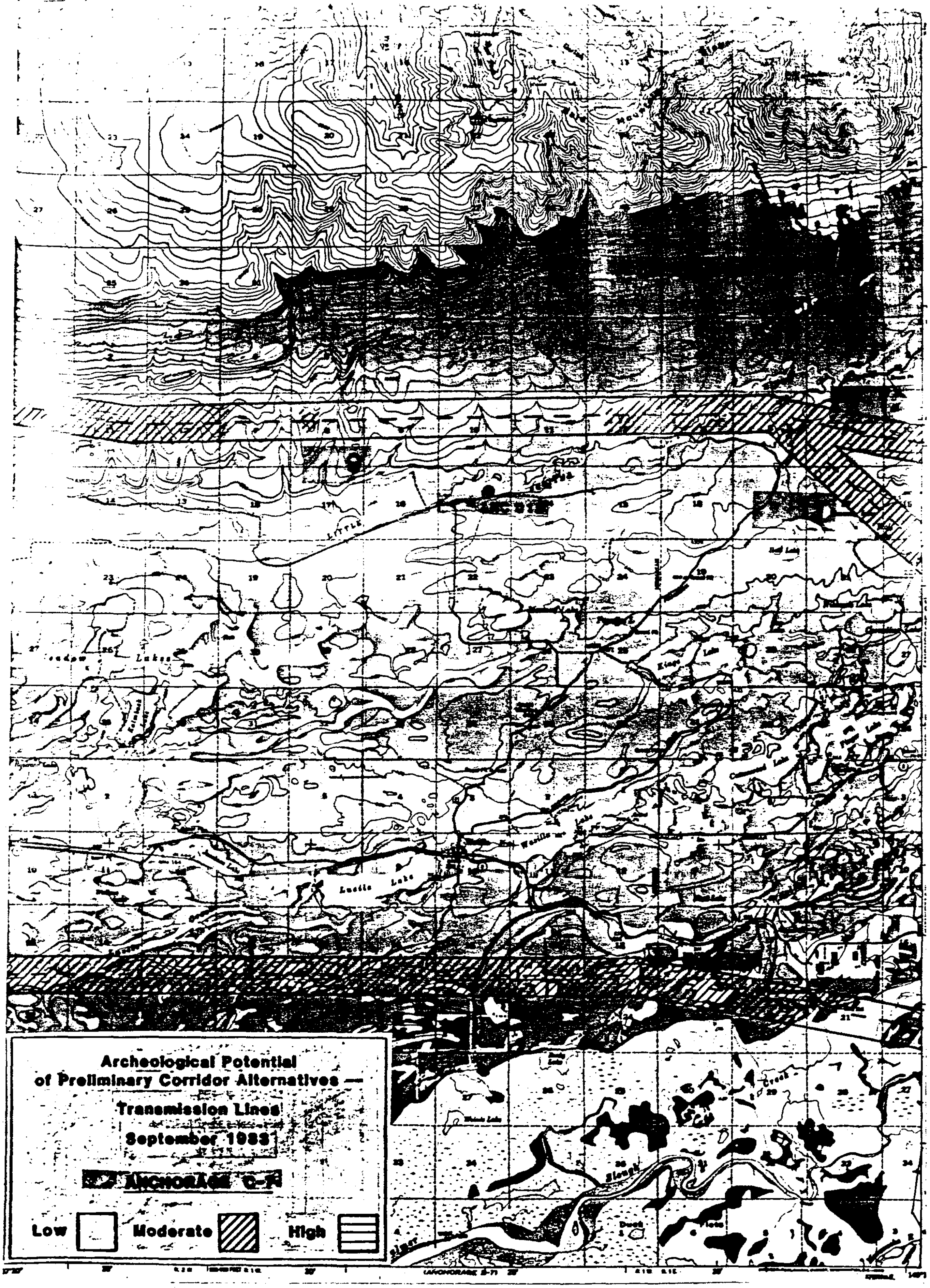


Figure A.43. Sites Along Transmission Routes, Anchorage C-7.

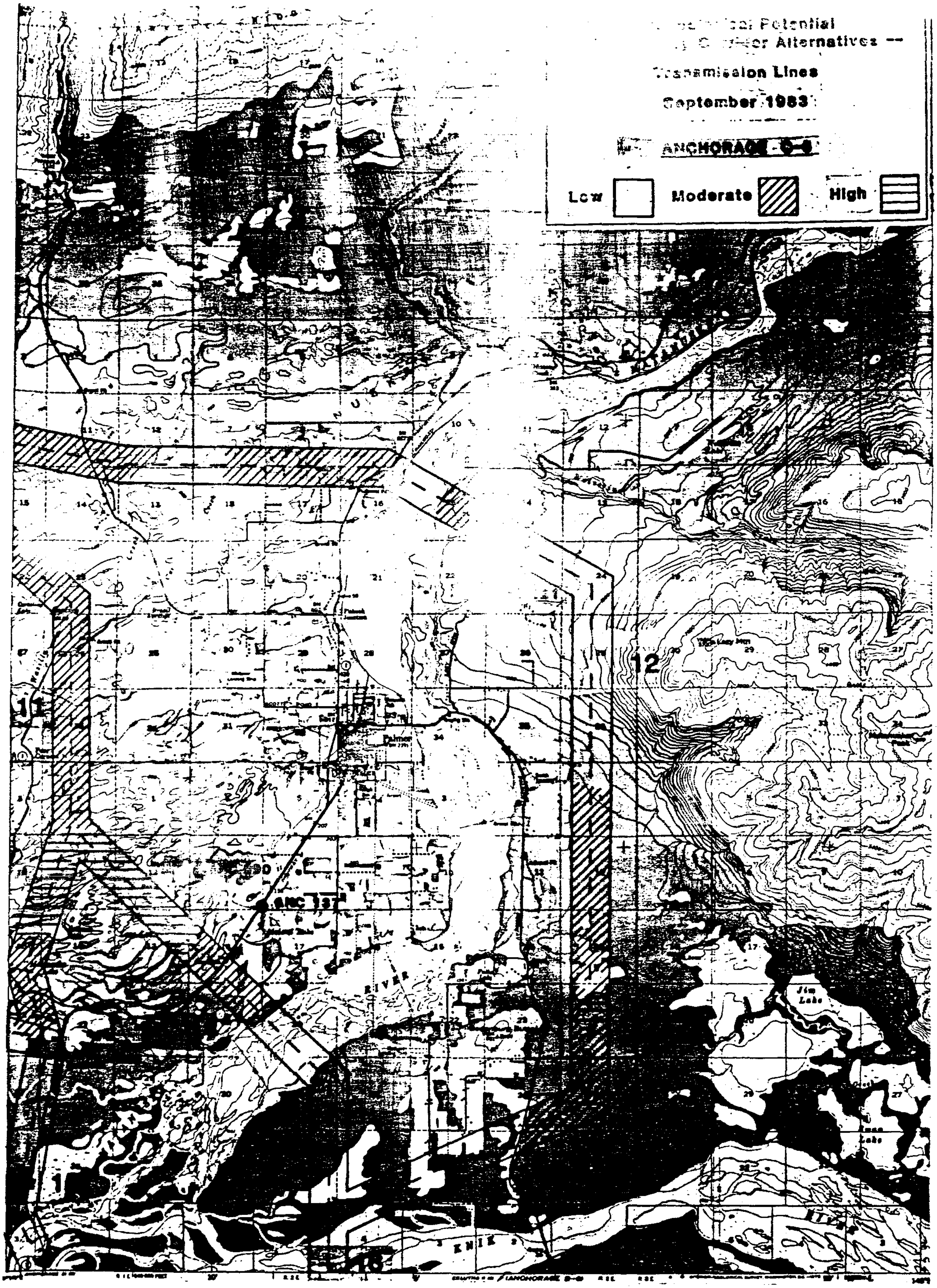


Figure A.44. Sites Along Transmission Routes, Anchorage C-6.

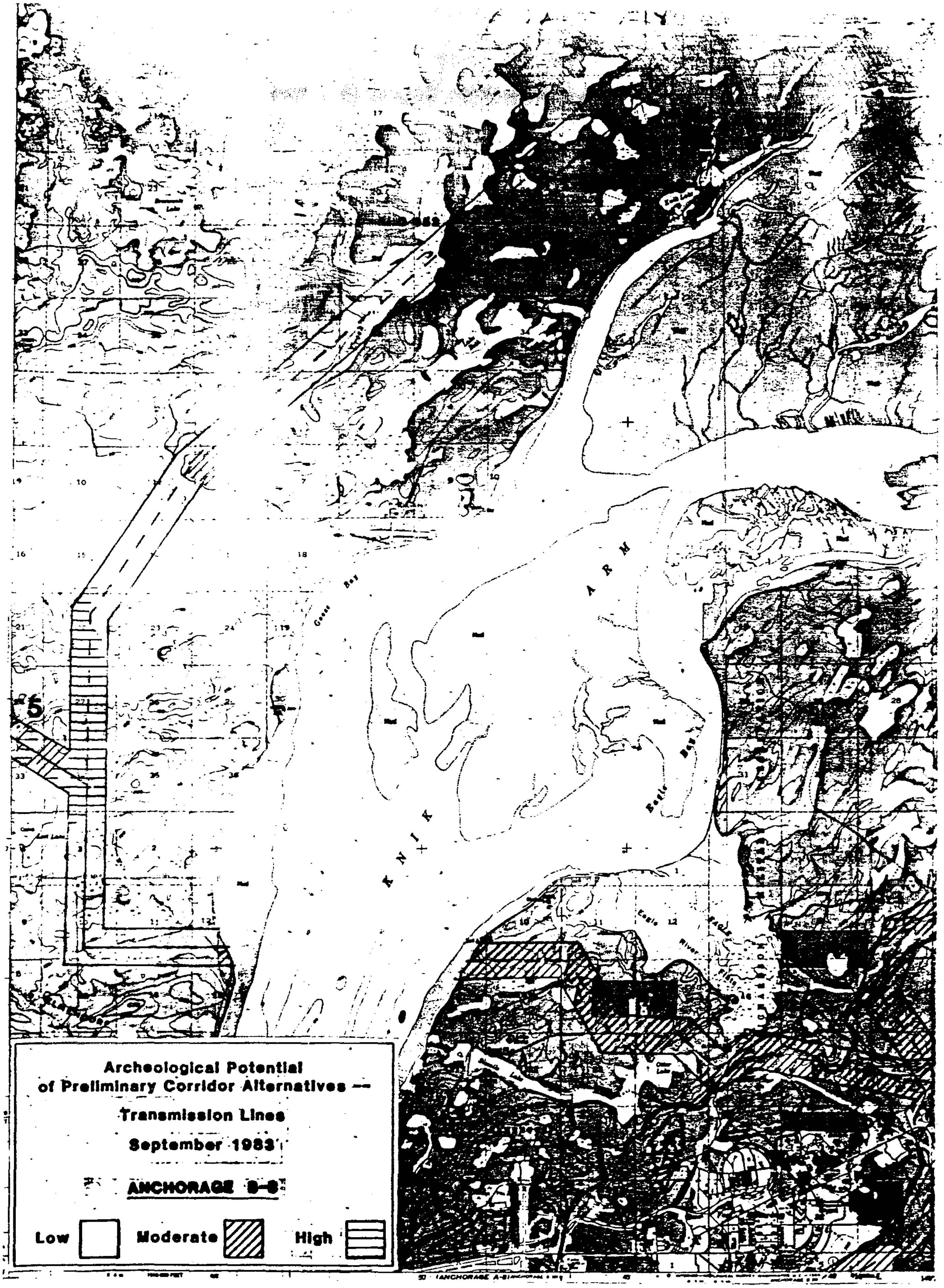


Figure A.45. Sites Along Transmission Routes, Anchorage B-8.

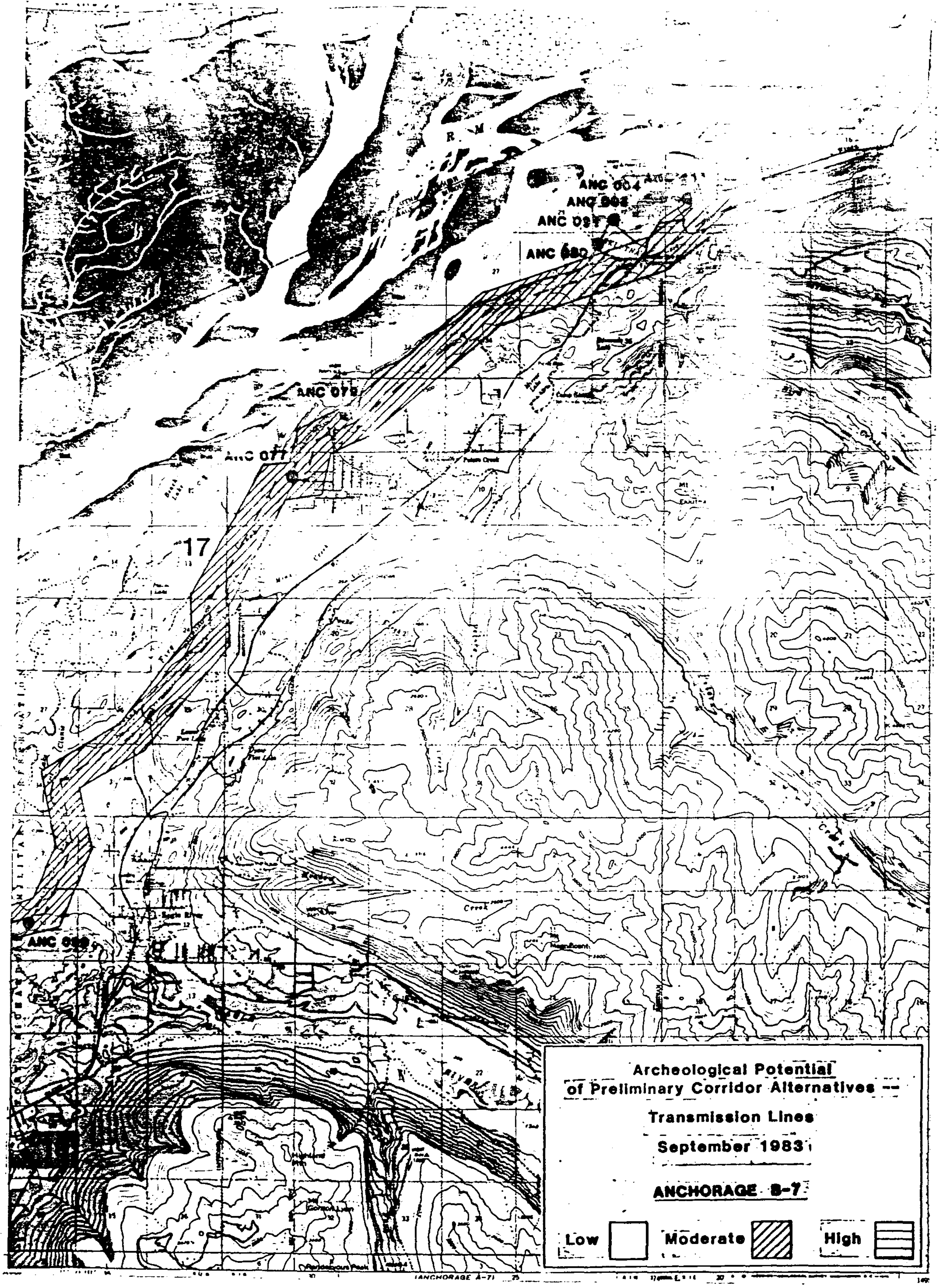


Figure A.46. Sites Along Transmission Routes, Anchorage B-7.

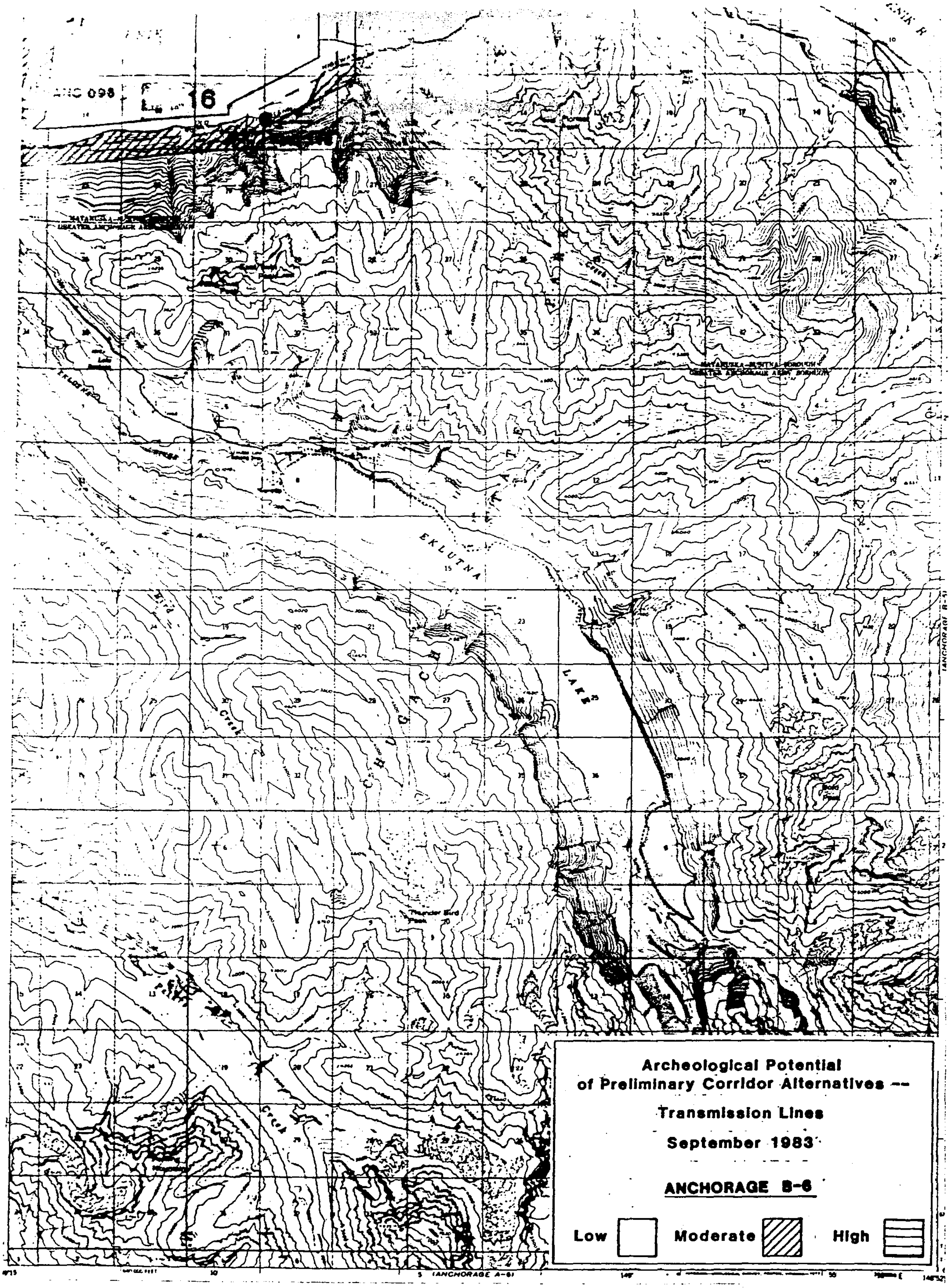


Figure A.47. Sites Along Transmission Routes, Anchorage B-6.

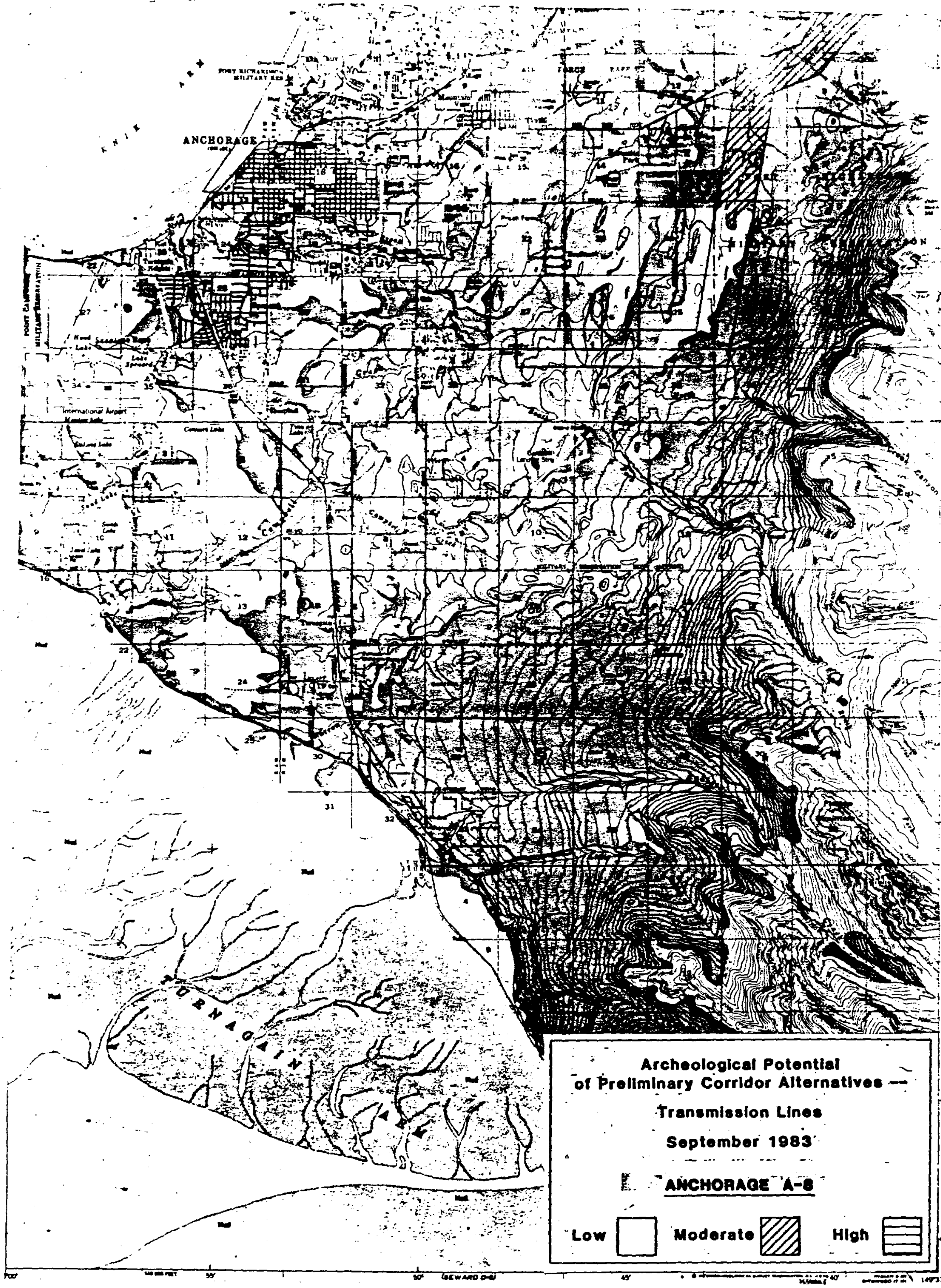
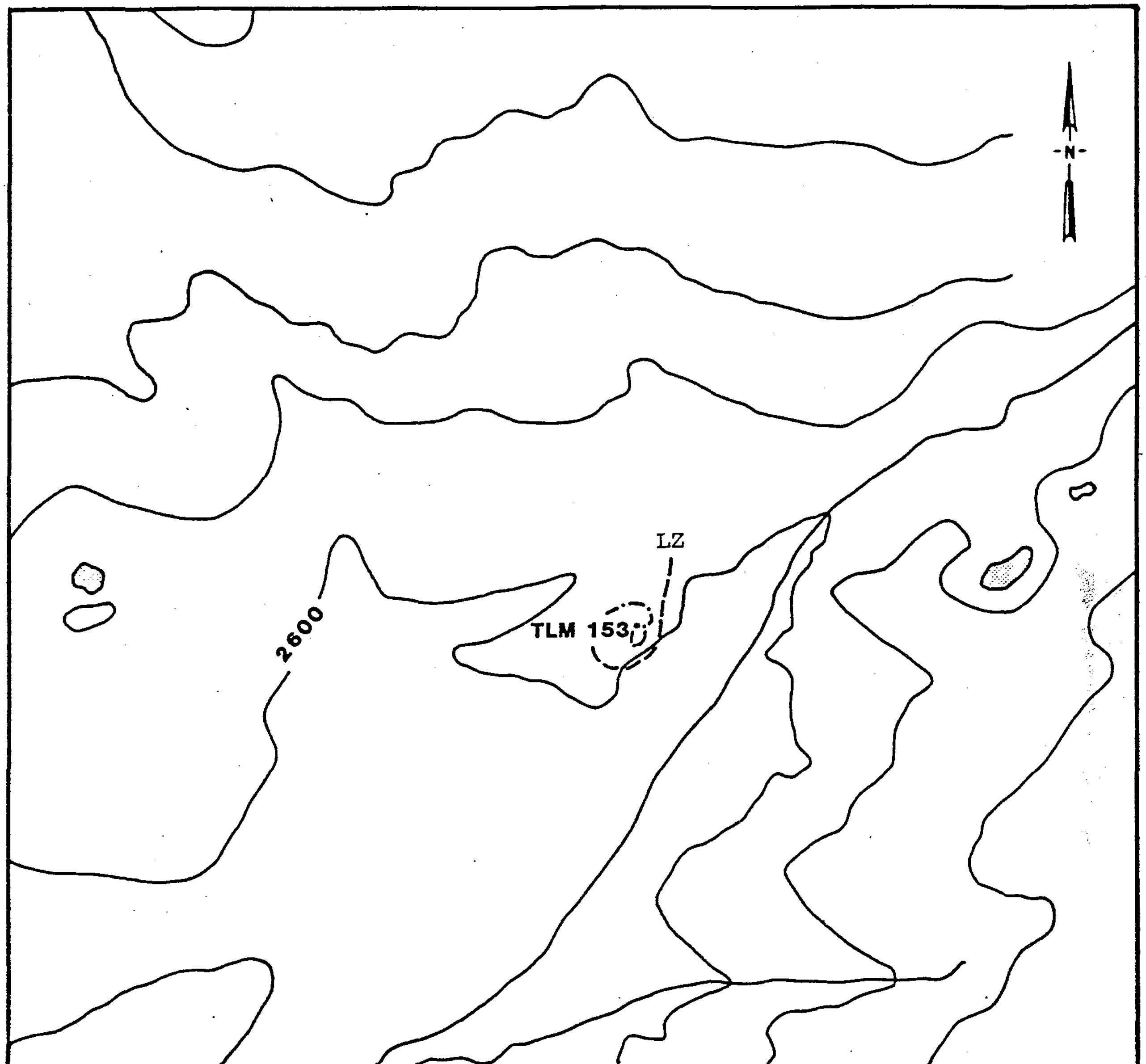


Figure A.48. Transmission Routes, Anchorage A-8.



0 300 600
METERS

Shovel Tests: 4

Surface Reconnaissance -----

Subsurface Test —·—·—·

Helicopter Landing Zone LZ

Contour Interval: 100 ft.

Talkeetna Mts. D-3
T. 33 N., R. 5 E., S. M.
SE 1/4 Sec. 26, SW 1/4 Sec. 25
NE 1/4 Sec. 35, NW 1/4 Sec. 36

Figure A.49. Site Location Map TLM 153.

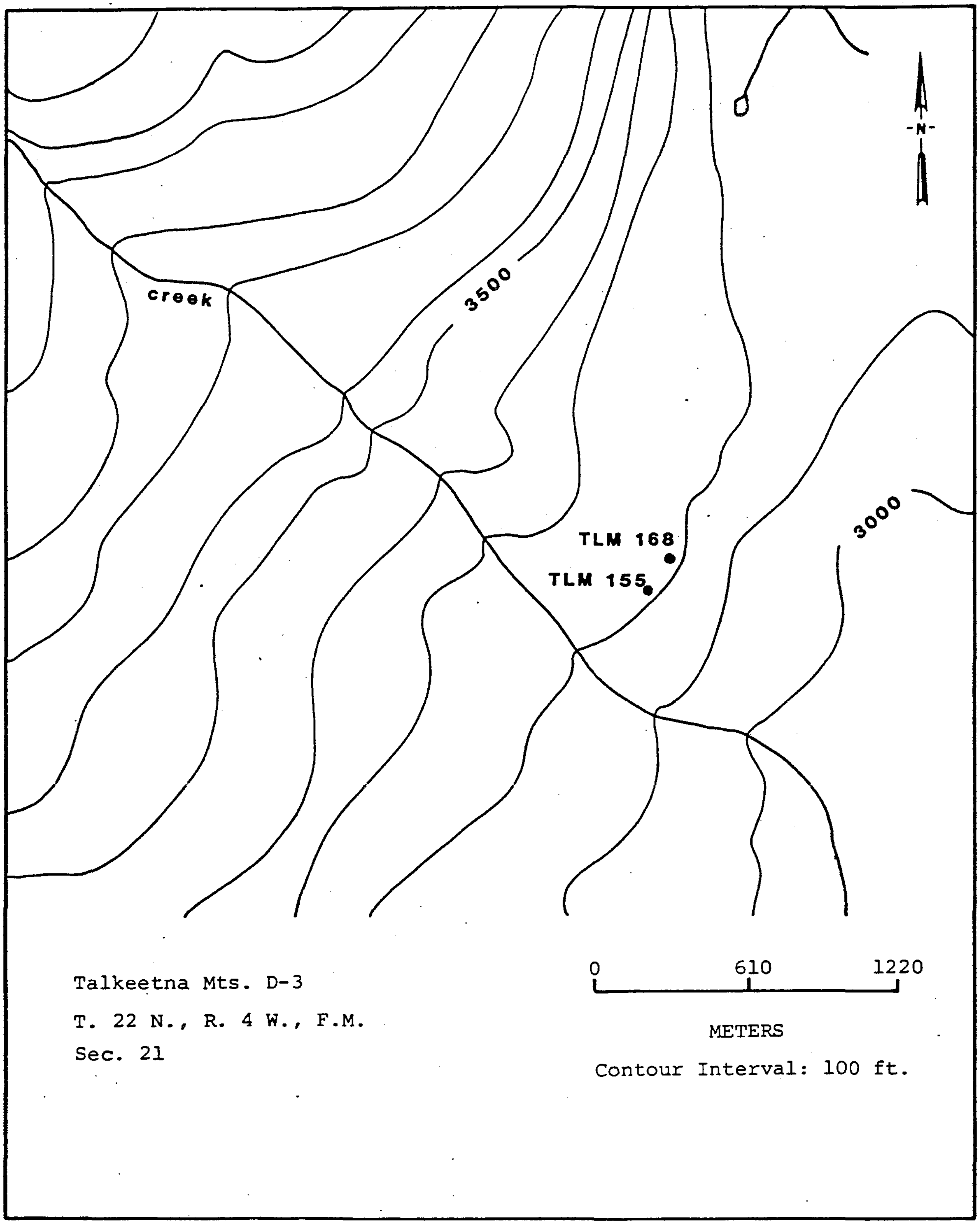


Figure A.50. Site Location Map TLM 155 and TLM 168.

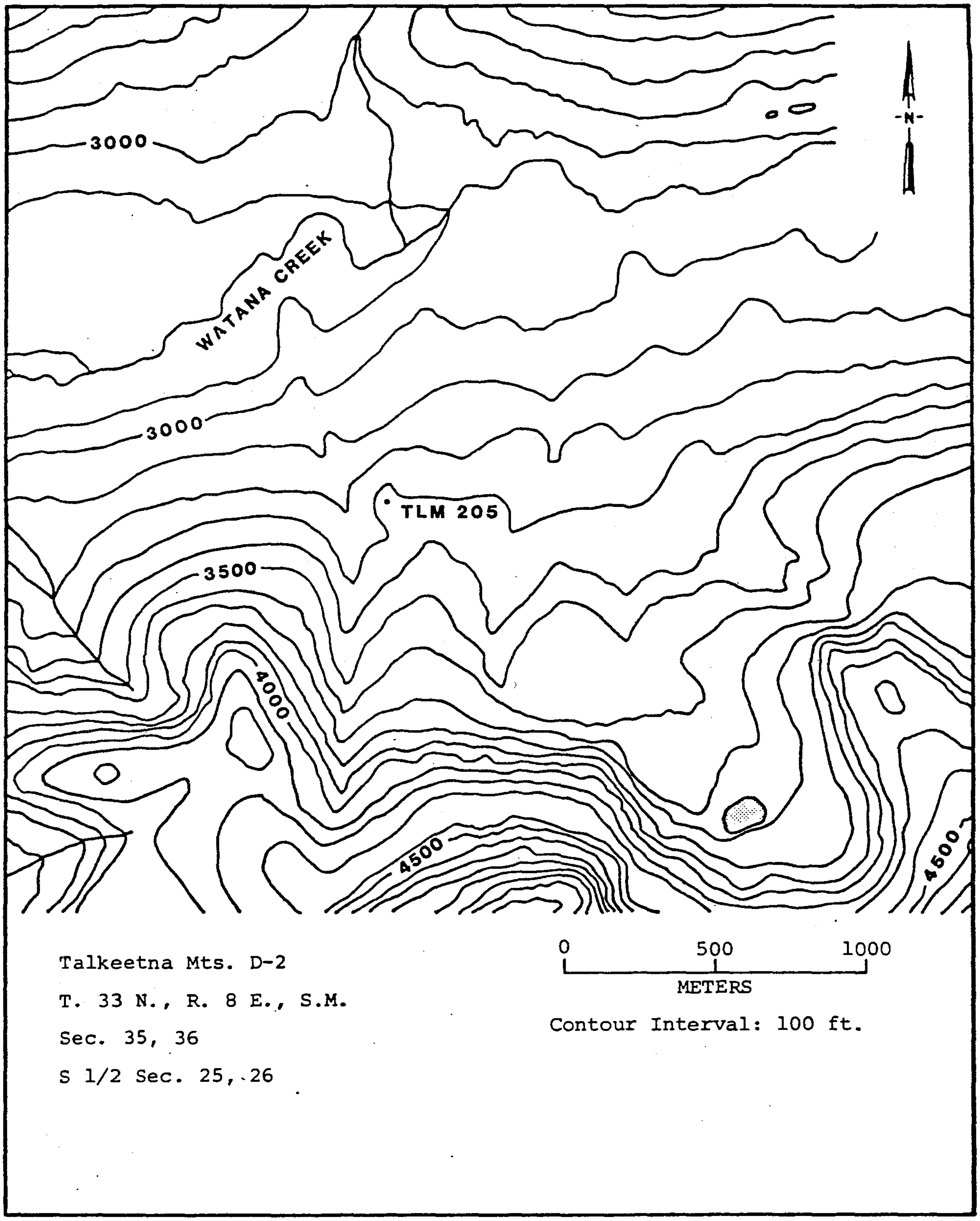
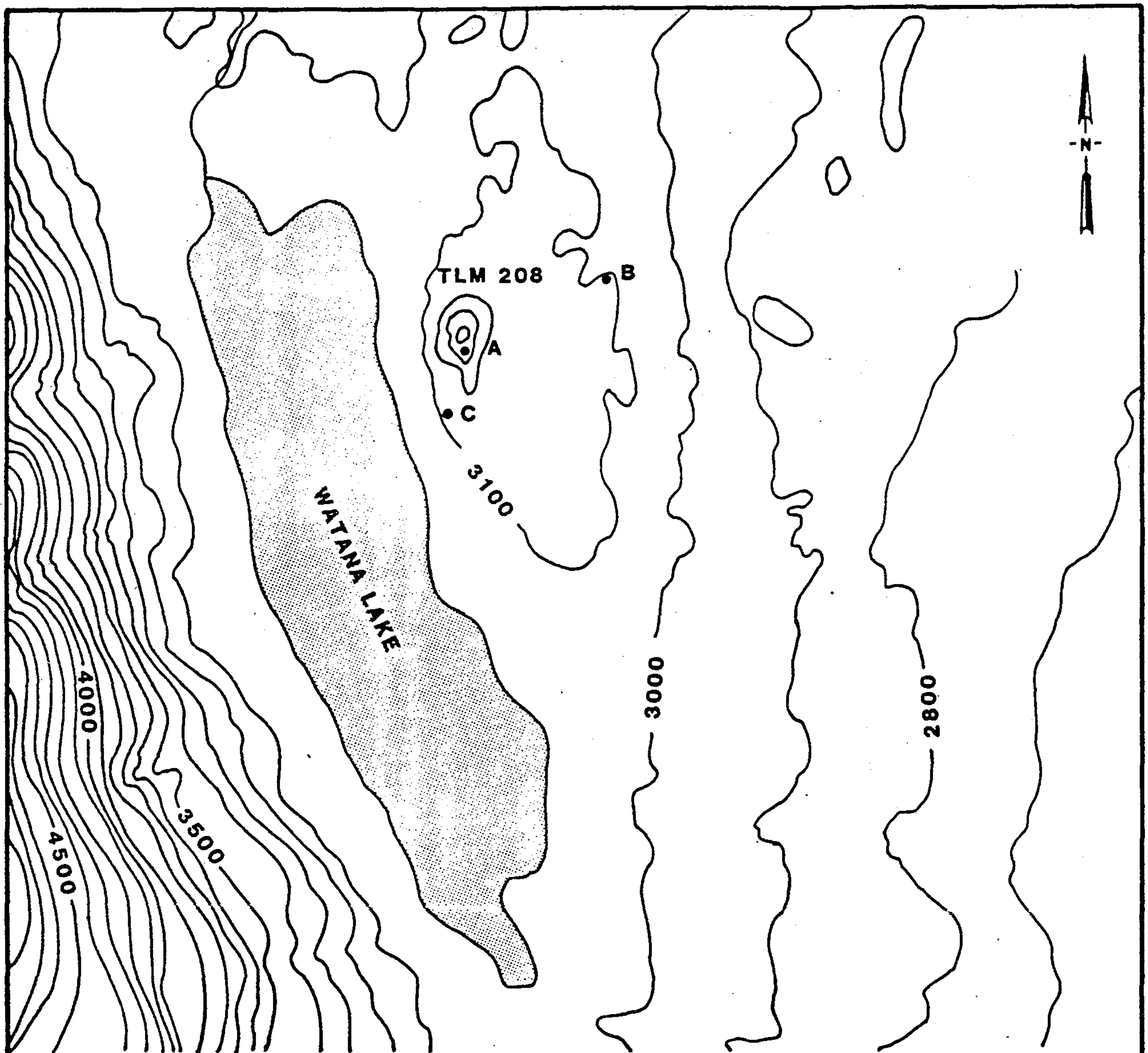


Figure A.51. Site Location Map TLM 205.



0 610 1220

METERS

Talkeetna Mts. C-3

T. 31 N., R. 7 E., S.M.
E 1/2 Sec. 36, SE 1/4 Sec. 25

T. 31 N., R. 8 E., S.M.
S 1/2 Sec. 30, Sec. 31

T. 30 N., R. 7 E., S.M.
NE 1/4 Sec. 1

Contour Interval: 100 ft.

Talkeetna Mts. C-3

T. 30 N., R. 8 E., S.M.
N 1/2 Sec. 6

Figure A.52. Site Location Map TLM 208.

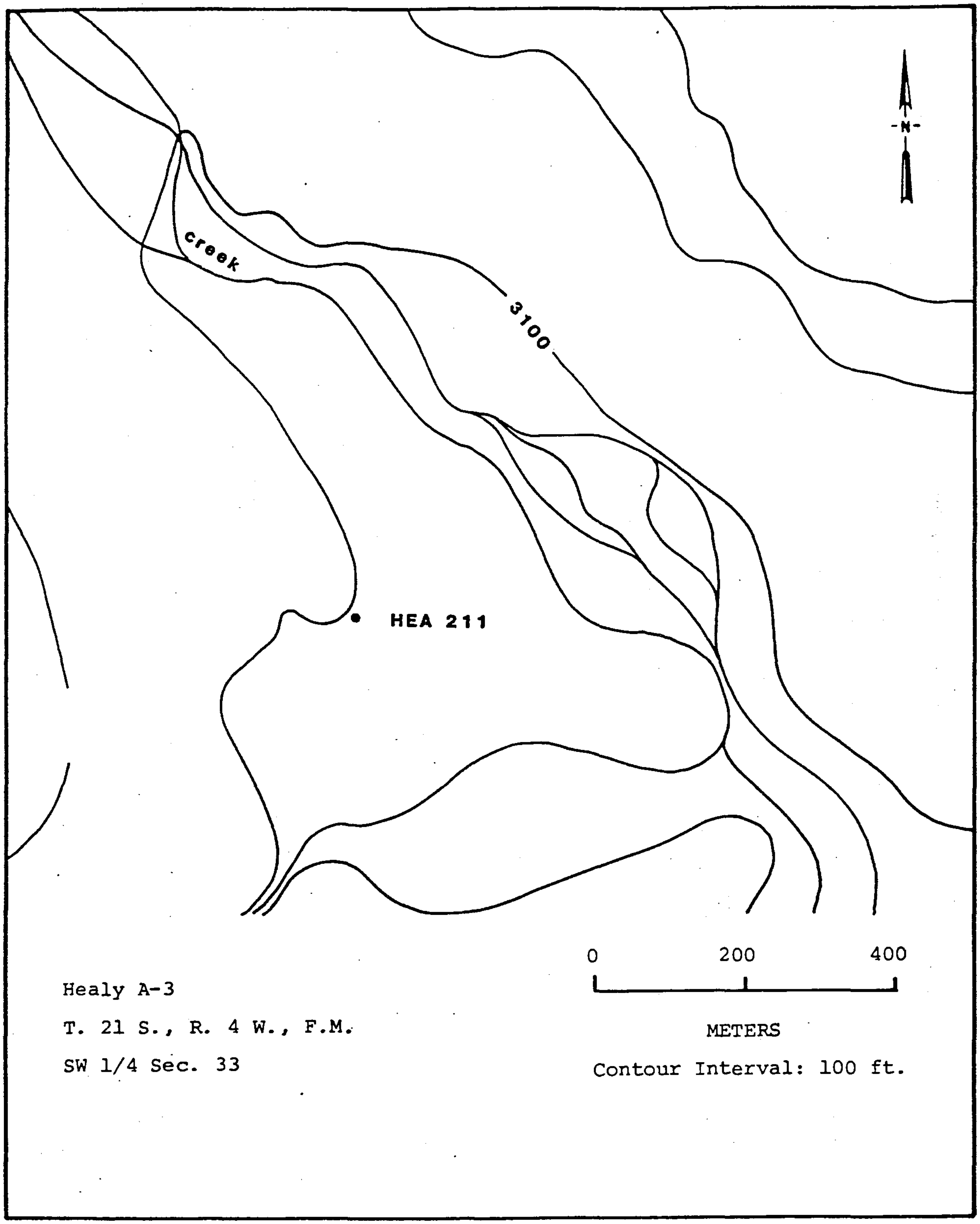


Figure A.53. Site Location Map HEA 211.

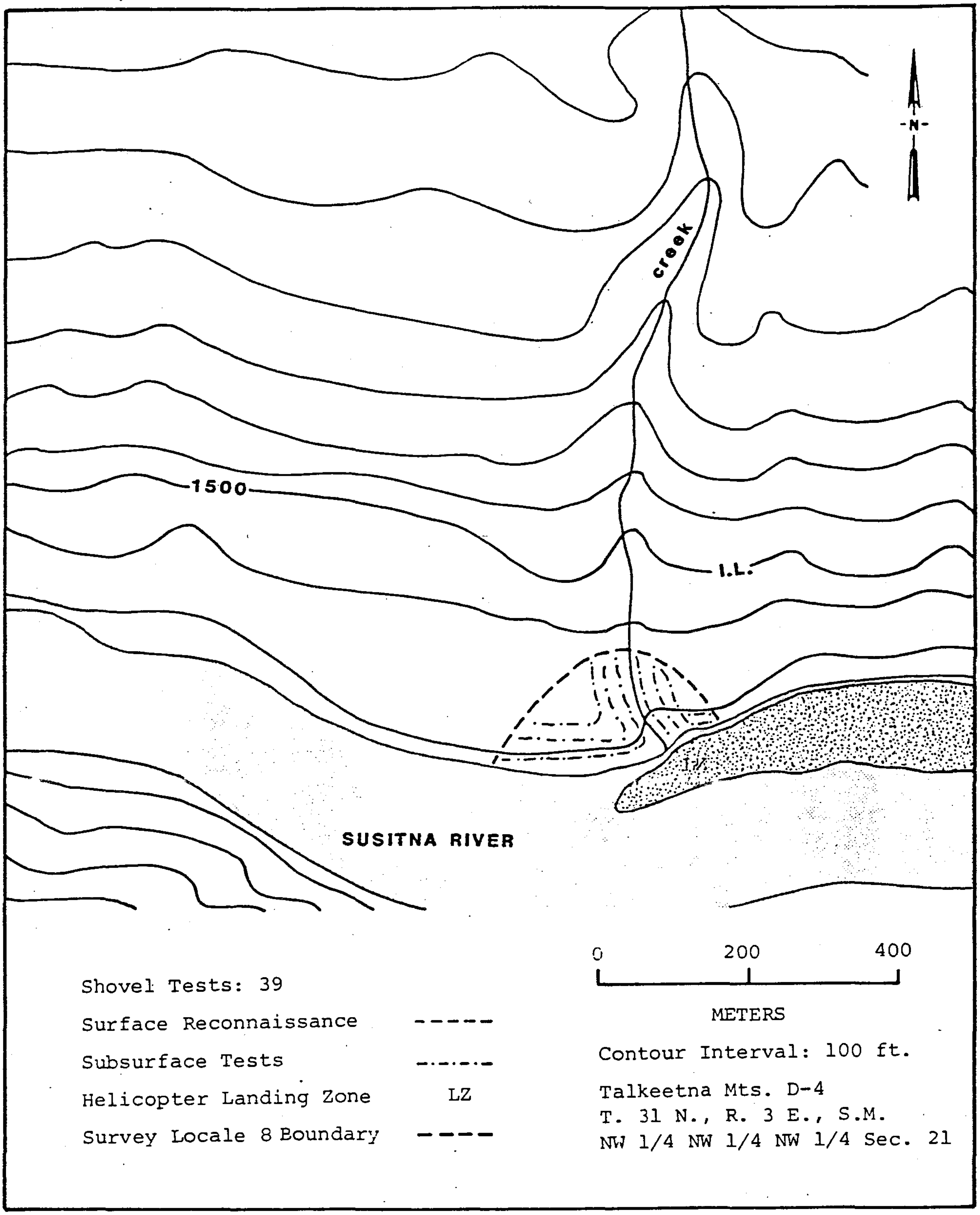


Figure A.54. Surface Reconnaissance and Subsurface Testing in Survey Locale 8 (1983).

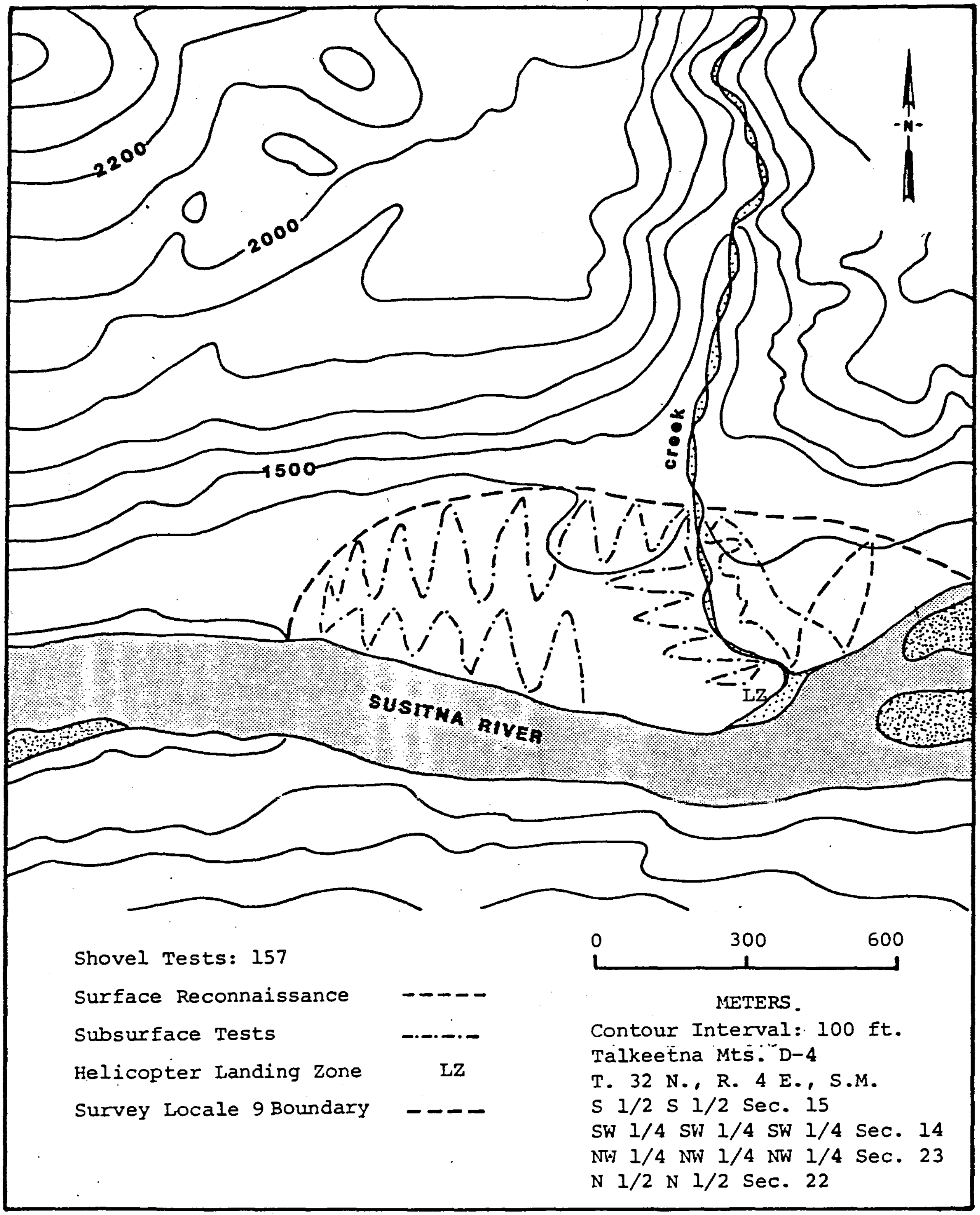


Figure A.55. Surface Reconnaissance and Subsurface Testing in Survey Locale 9 (1983).

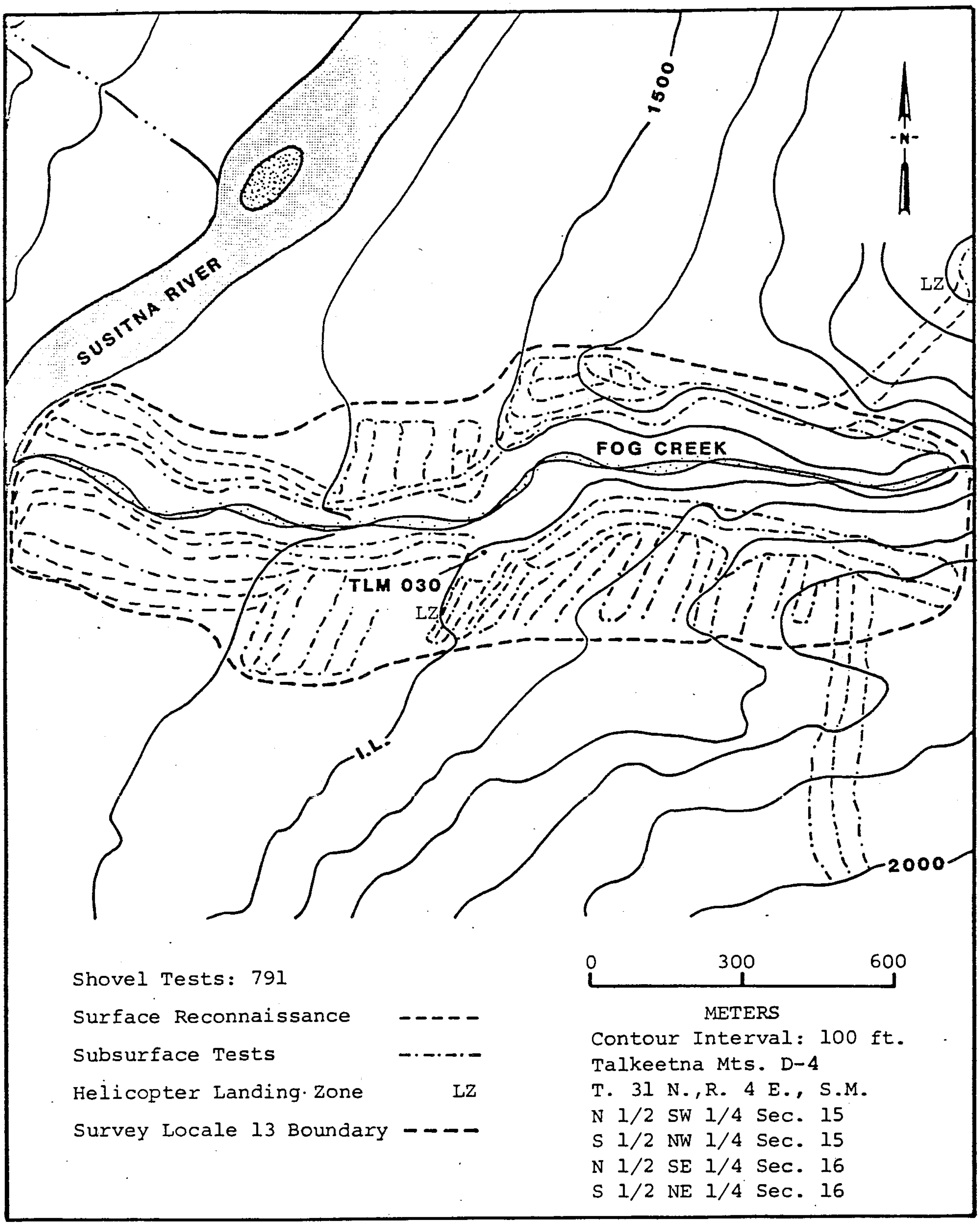


Figure A.56. Surface Reconnaissance and Subsurface Testing in Survey Locale 13 (1983).

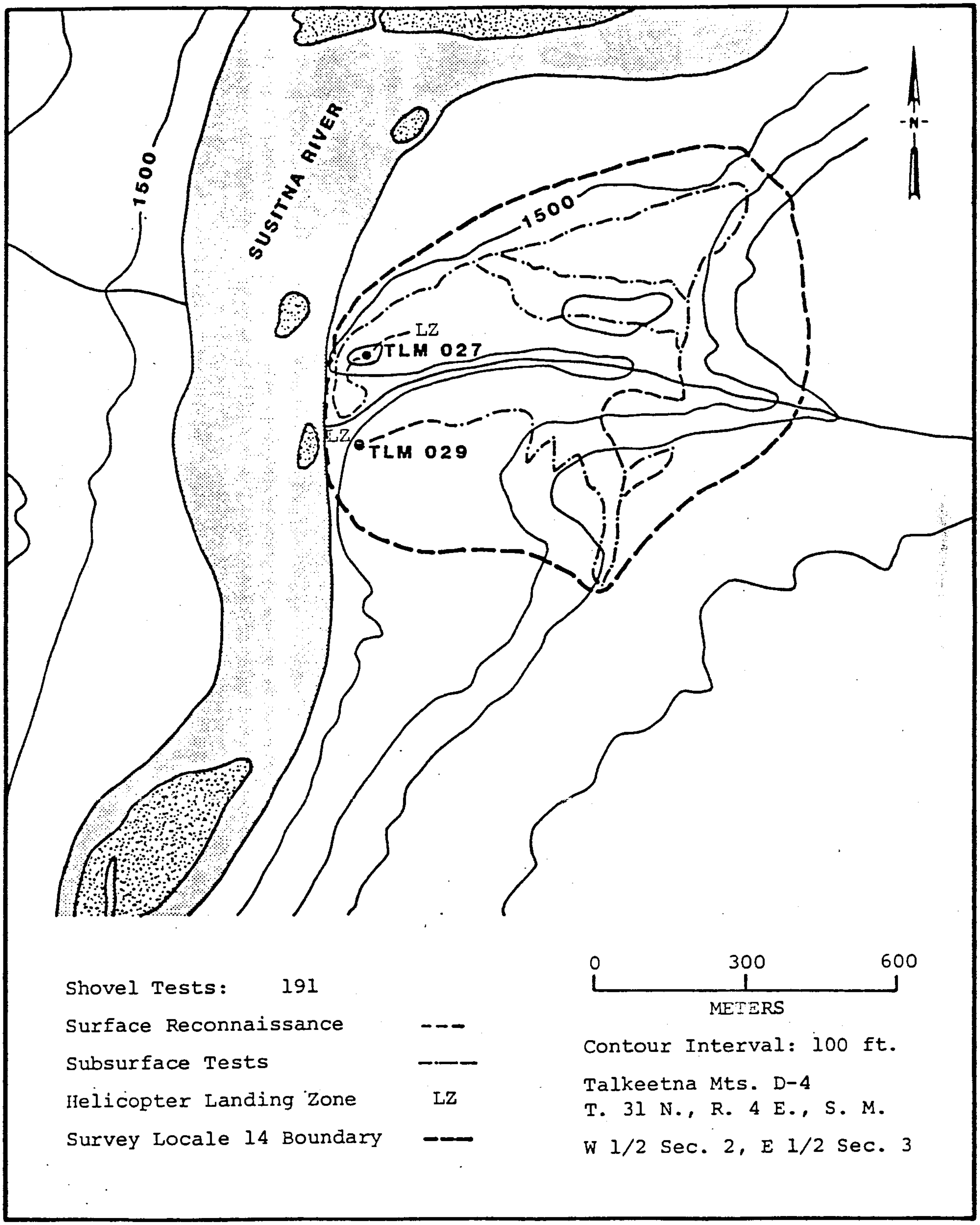


Figure A.57. Surface Reconnaissance and Subsurface Testing in Survey Locale 14 (1983).

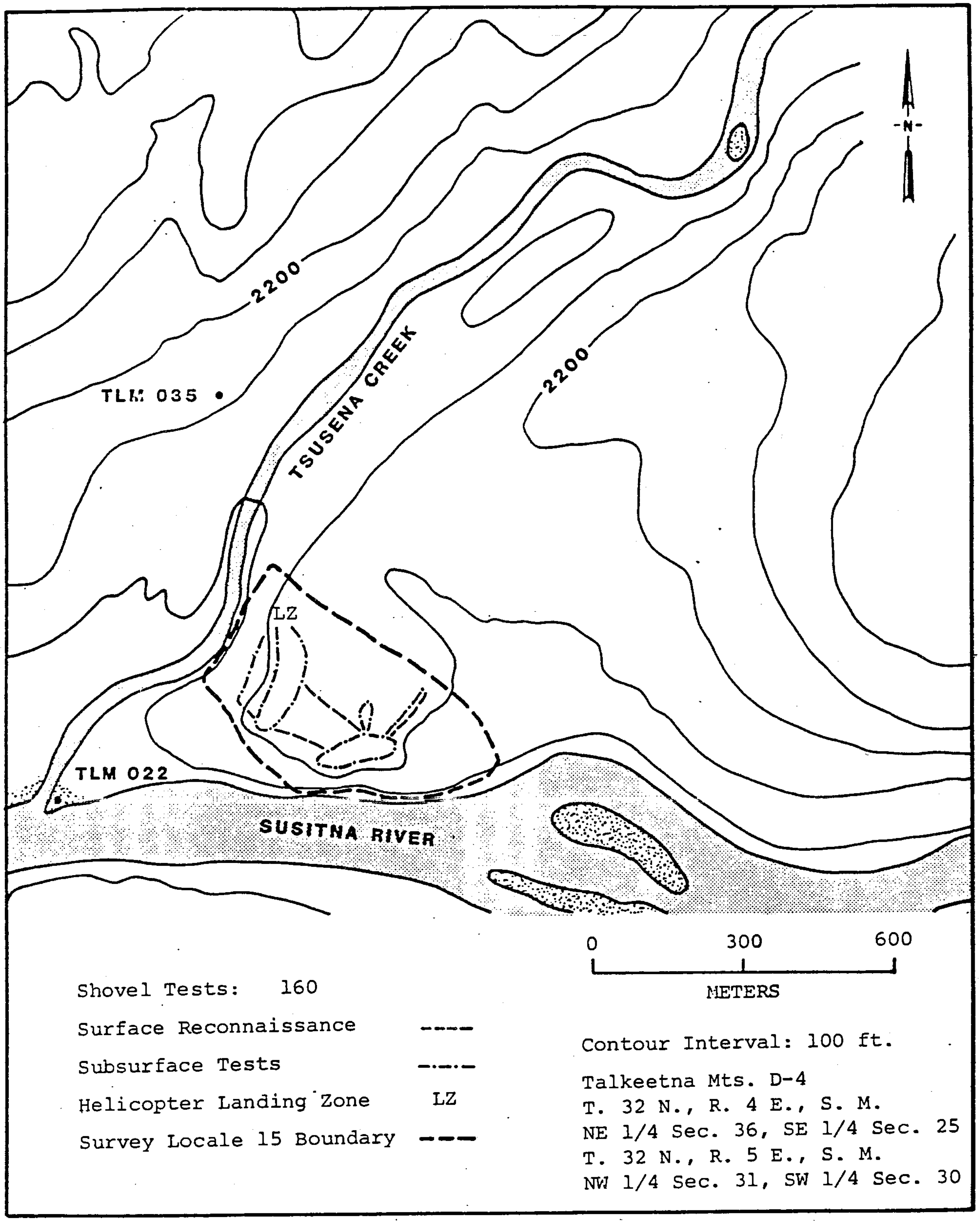


Figure A.58. Surface Reconnaissance and Subsurface Testing in Survey Locale 15 (1983).

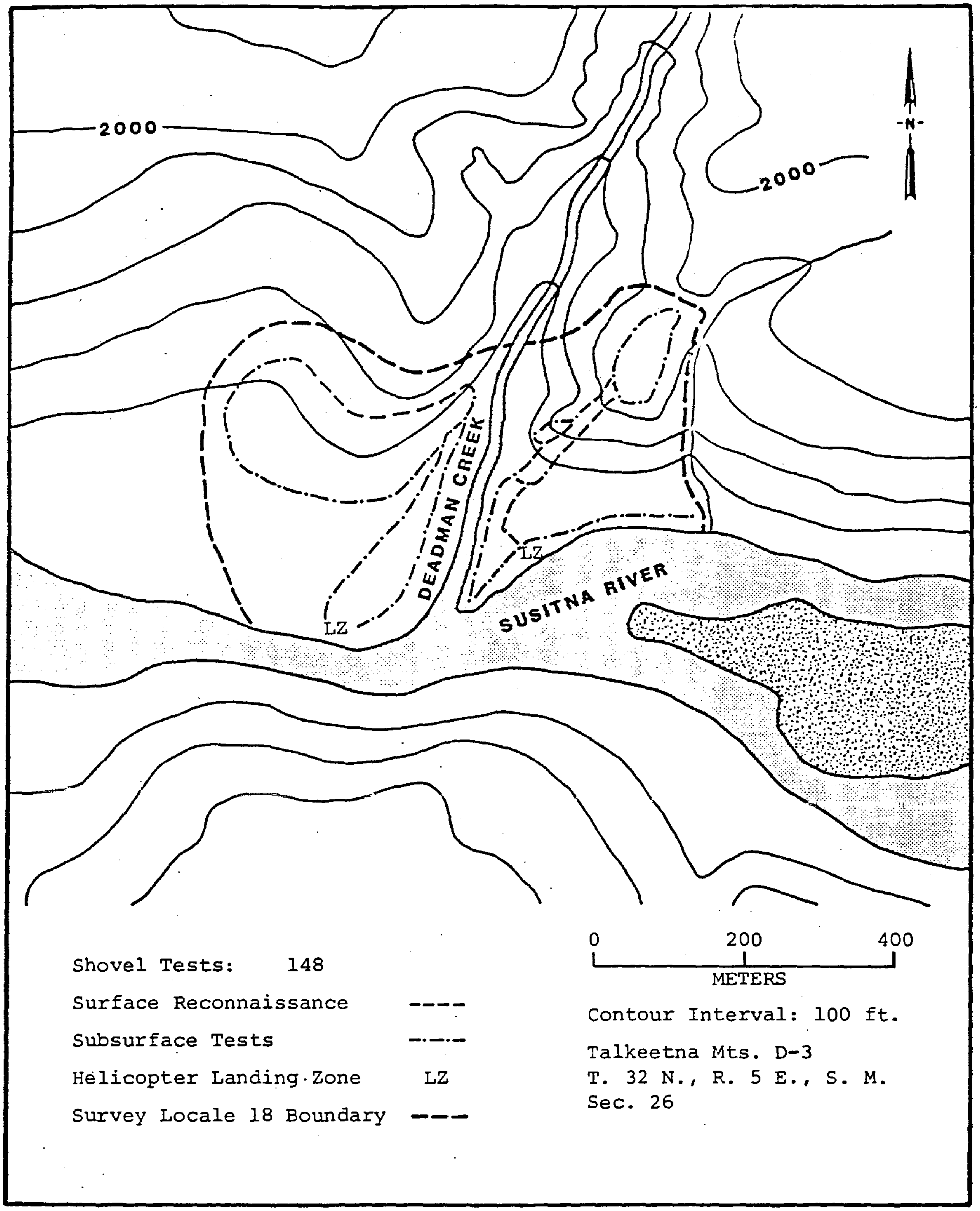
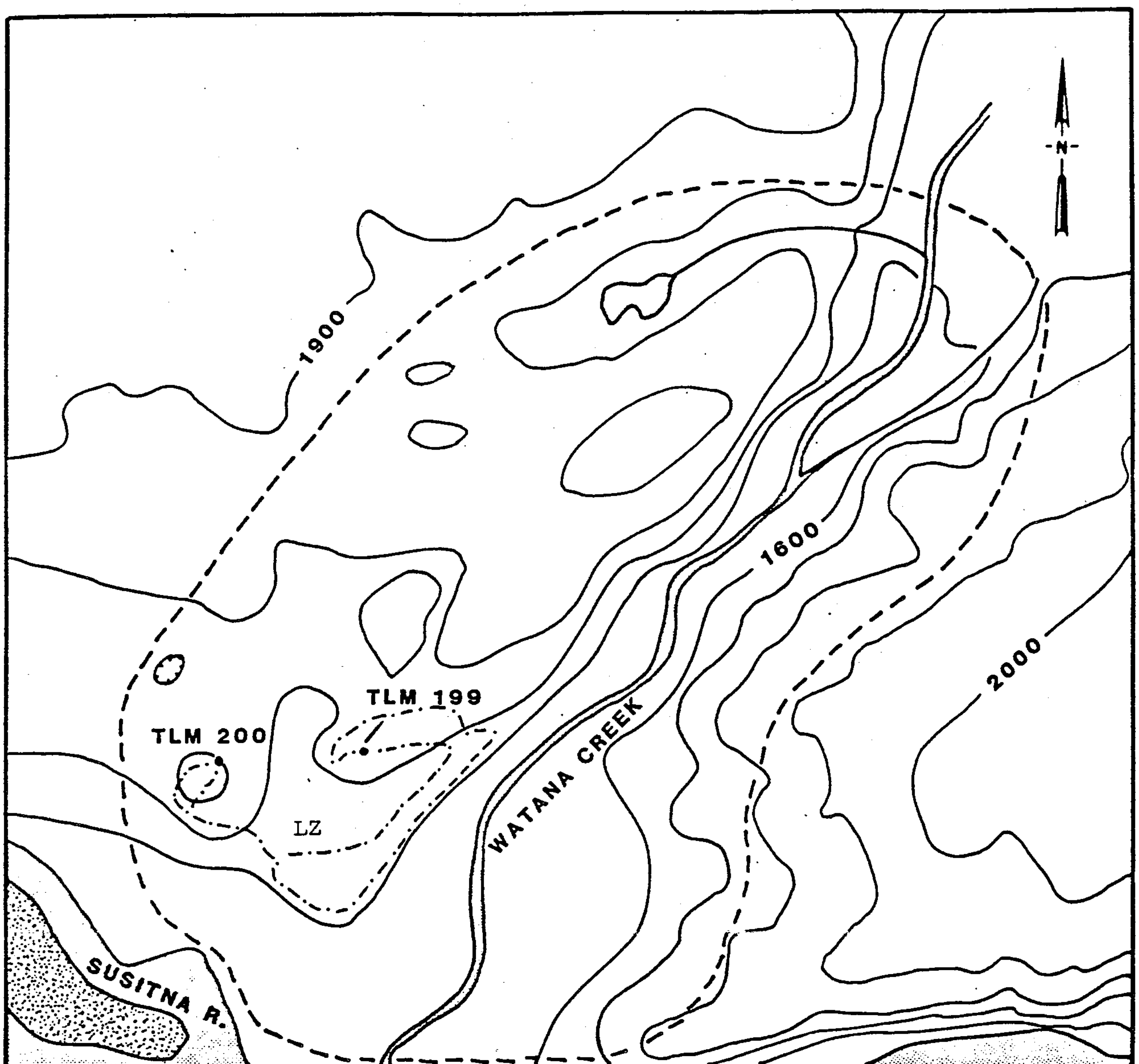


Figure A.59. Surface Reconnaissance and Subsurface Testing in Survey Locale 18 (1983).



Shovel Tests: 110

Surface Reconnaissance - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 22 Boundary - - - -

0 300 600

METERS

Contour Interval: 100 ft.

Talkeetna Mts. D-3
T. 32 N., R. 6 E., S.M.
S 1/2 Sec. 24
Sec. 25

Figure A.60. Surface Reconnaissance and Subsurface Testing in Survey Locale 22 (1983).

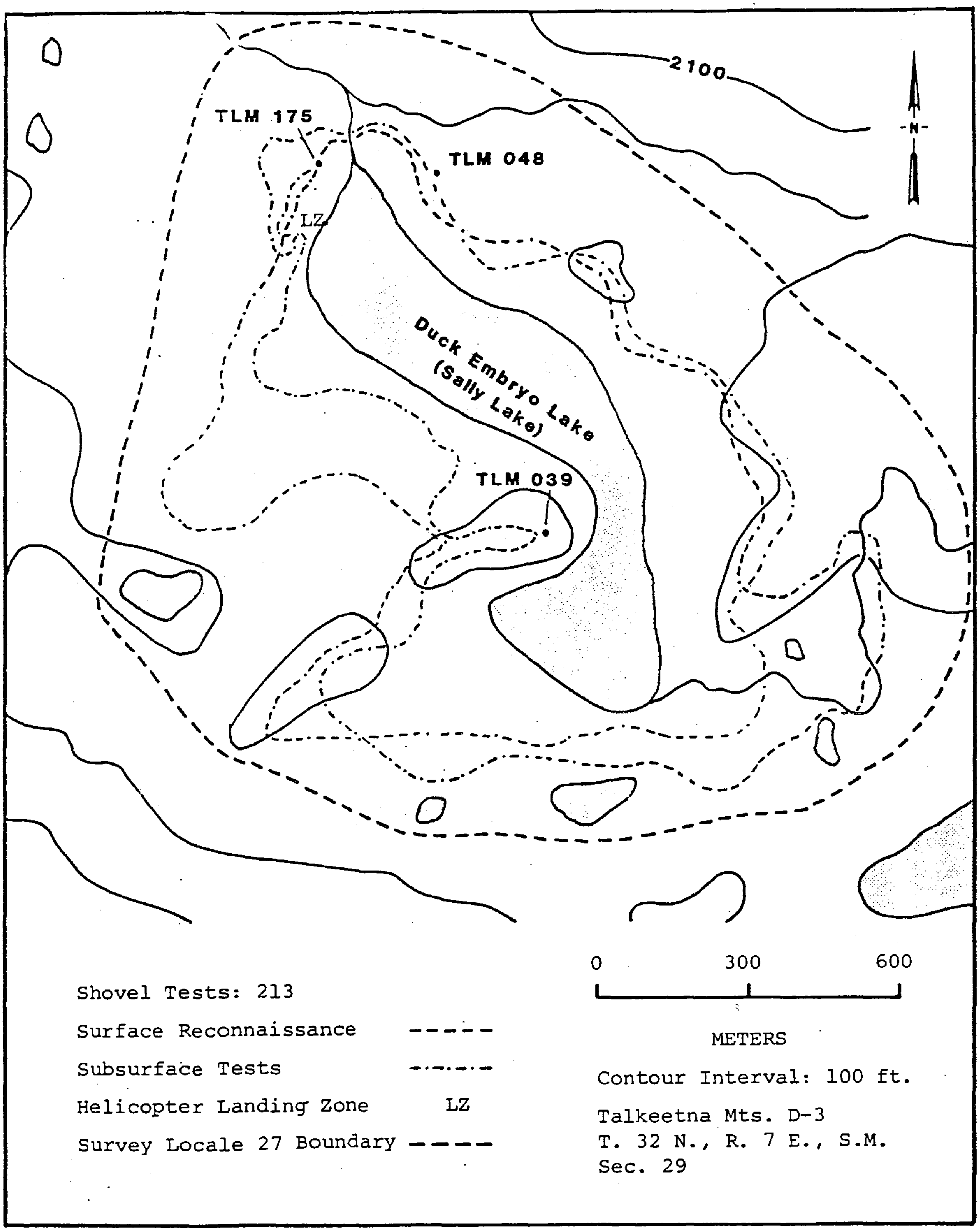
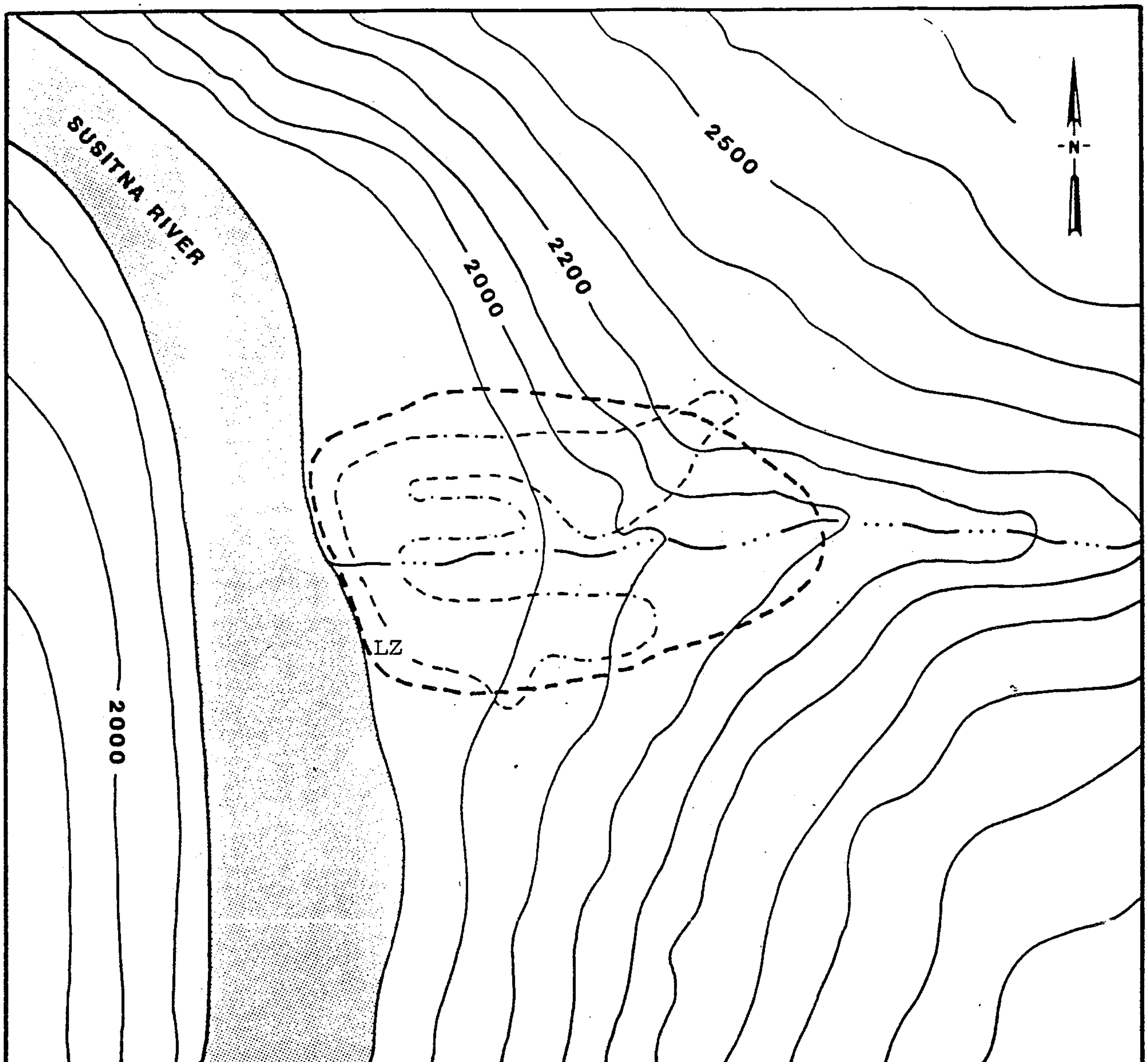


Figure A.61. Surface Reconnaissance and Subsurface Testing in Survey Locale 27 (1983).



Shovel Tests: 19

Surface Reconnaissance ------

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 35 Boundary ----

0 200 400

METERS

Contour Interval: 100 ft.

Talkeetna Mts. C-2
T. 31 N., R. 10 E., S.M.
SW 1/4 SW 1/4 Sec. 3

Figure A.62. Surface Reconnaissance and Subsurface Testing in Survey Locale 35 (1983).

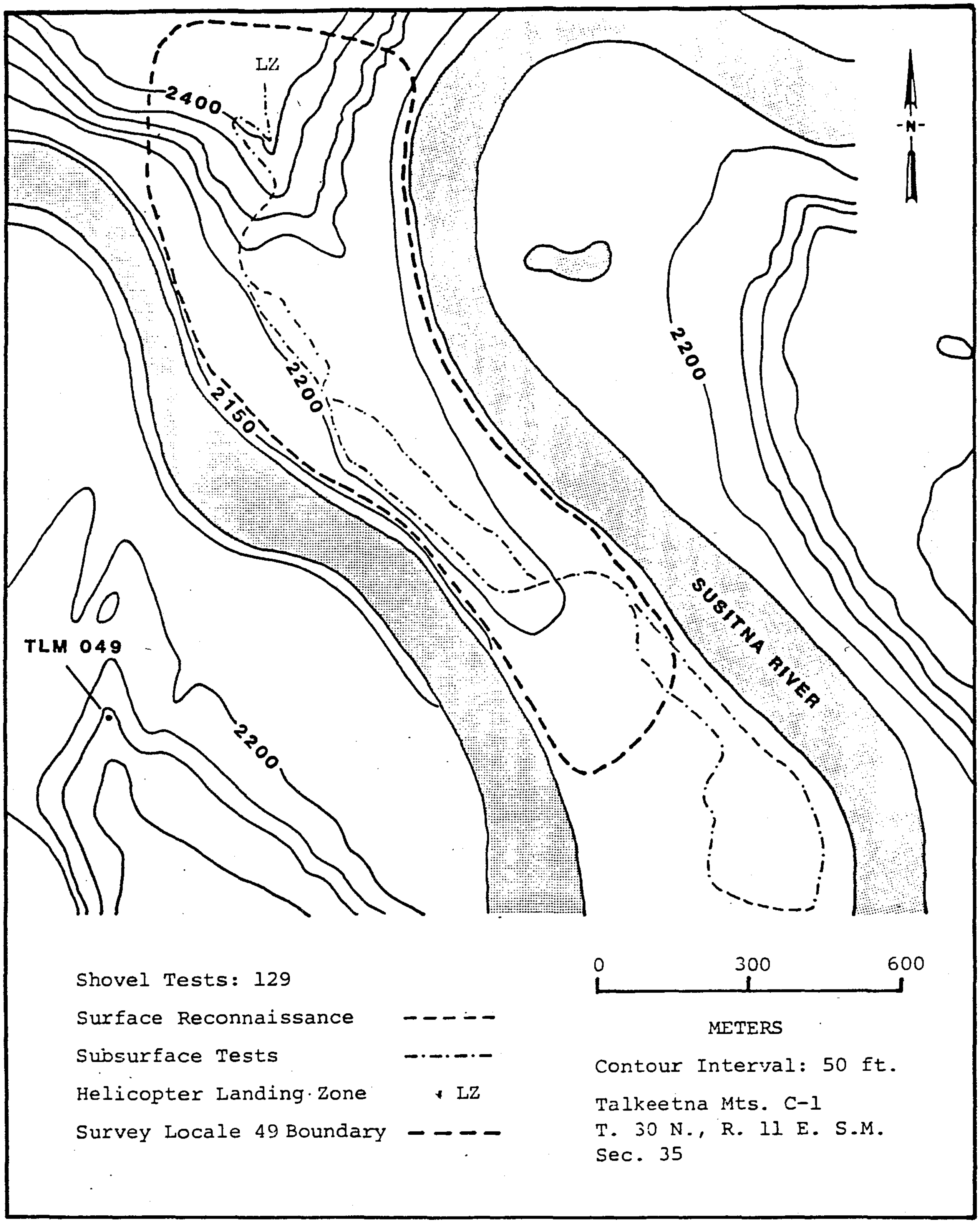


Figure A.63. Surface Reconnaissance and Subsurface Testing in Survey Locale 49 (1983).

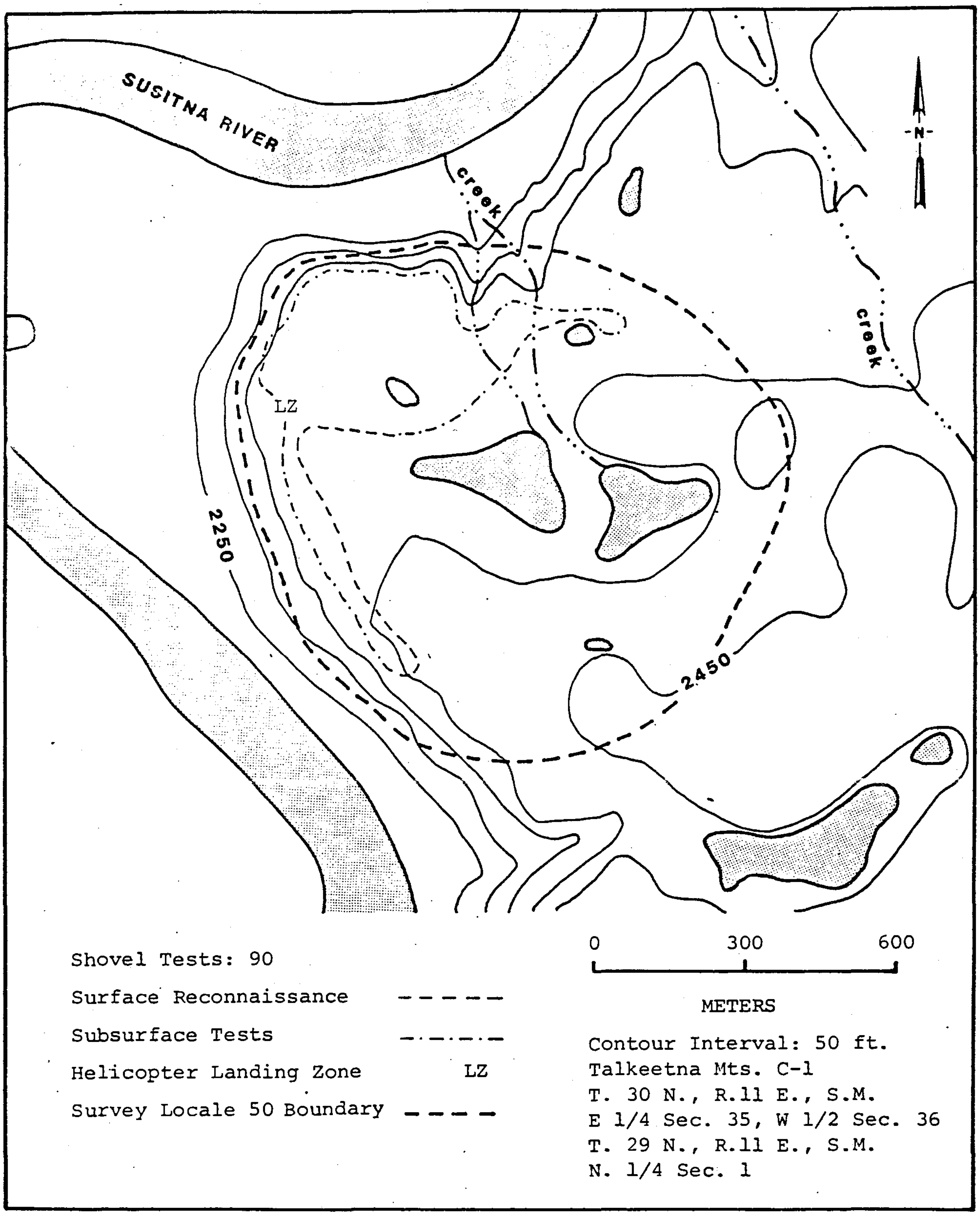
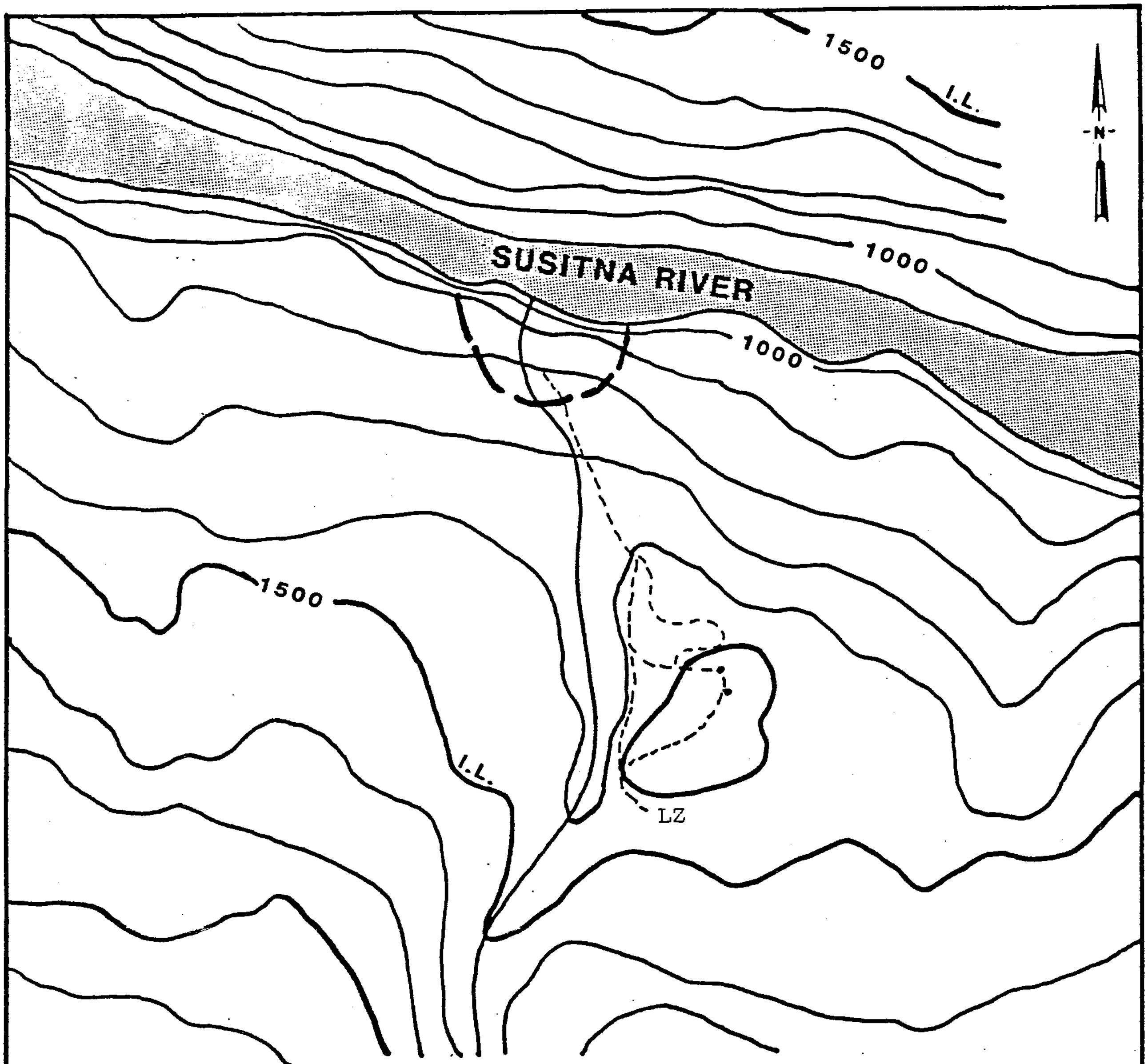


Figure A.64. Surface Reconnaissance and Subsurface Testing in Survey Locale 50 (1983).



0 200 400

METERS

Shovel Tests: 2

Surface Reconnaissance - - - - - - - - - - -

Subsurface Test - - • - - • - - • - -

Contour Interval: 100 ft.

Helicopter Landing Zone LZ

Survey Locale 57 Boundary ▬ ▬ ▬

Talkeetna Mts. D-5 S.M.
T. 31 N., R. 1 E.
NE 1/4, SE 1/4, Sec. 3

Figure A.65. Surface Reconnaissance and Subsurface Testing in Survey Locale 57 (1983).

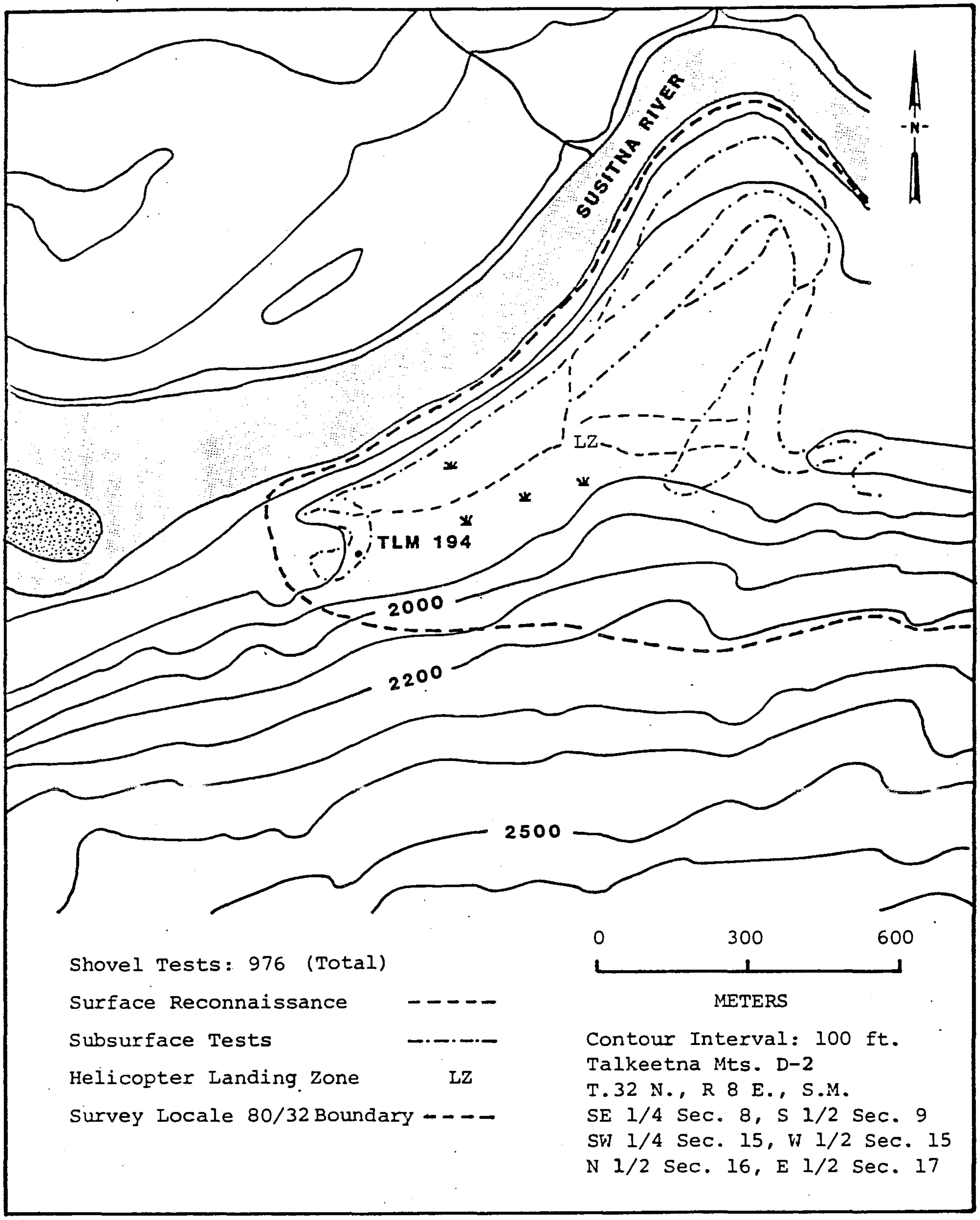


Figure A.66. Surface Reconnaissance and Subsurface Testing in Survey Locale 80/32 (1983).

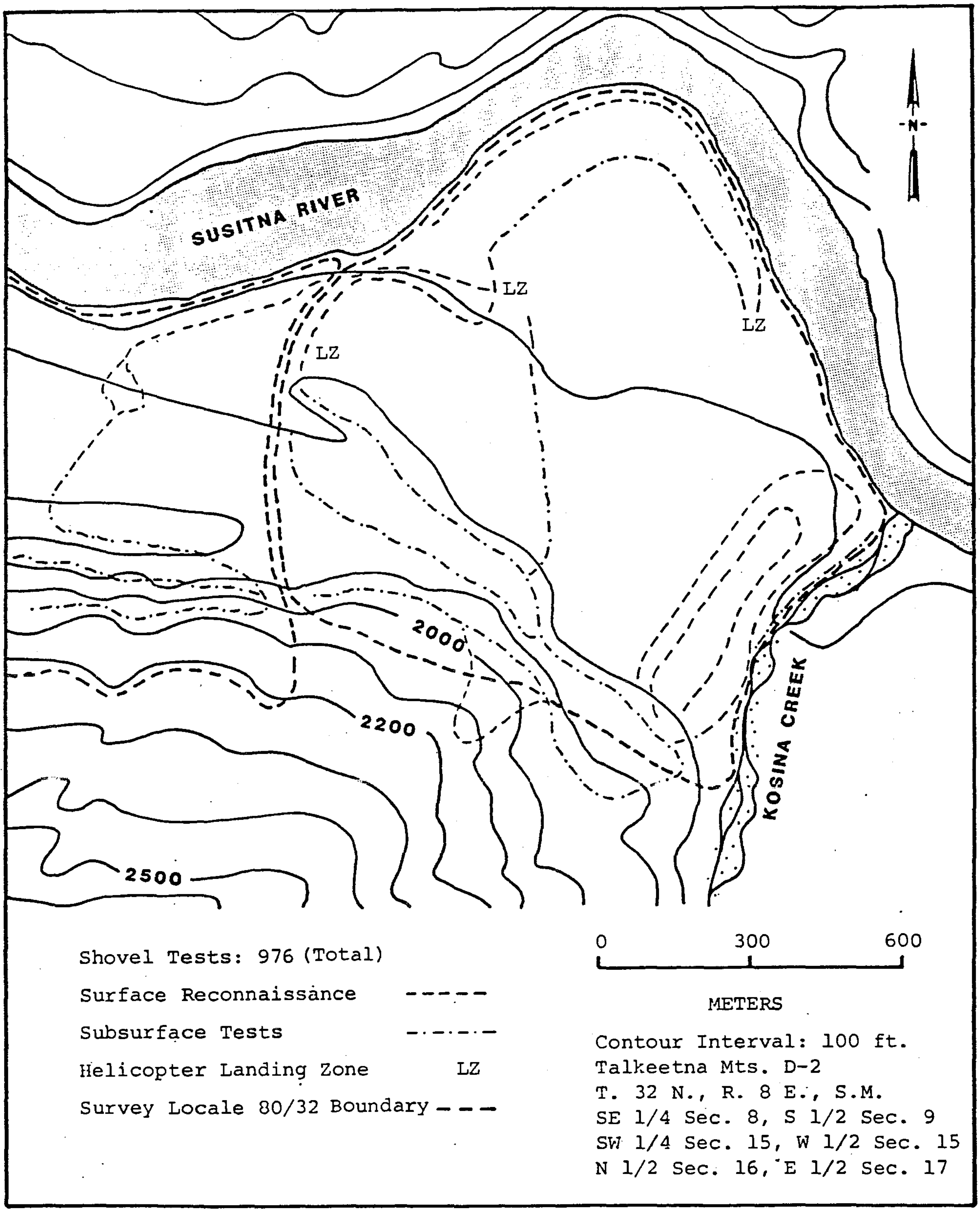


Figure A.67. Surface Reconnaissance and Subsurface Testing in Survey Locale 80/32 (1983).

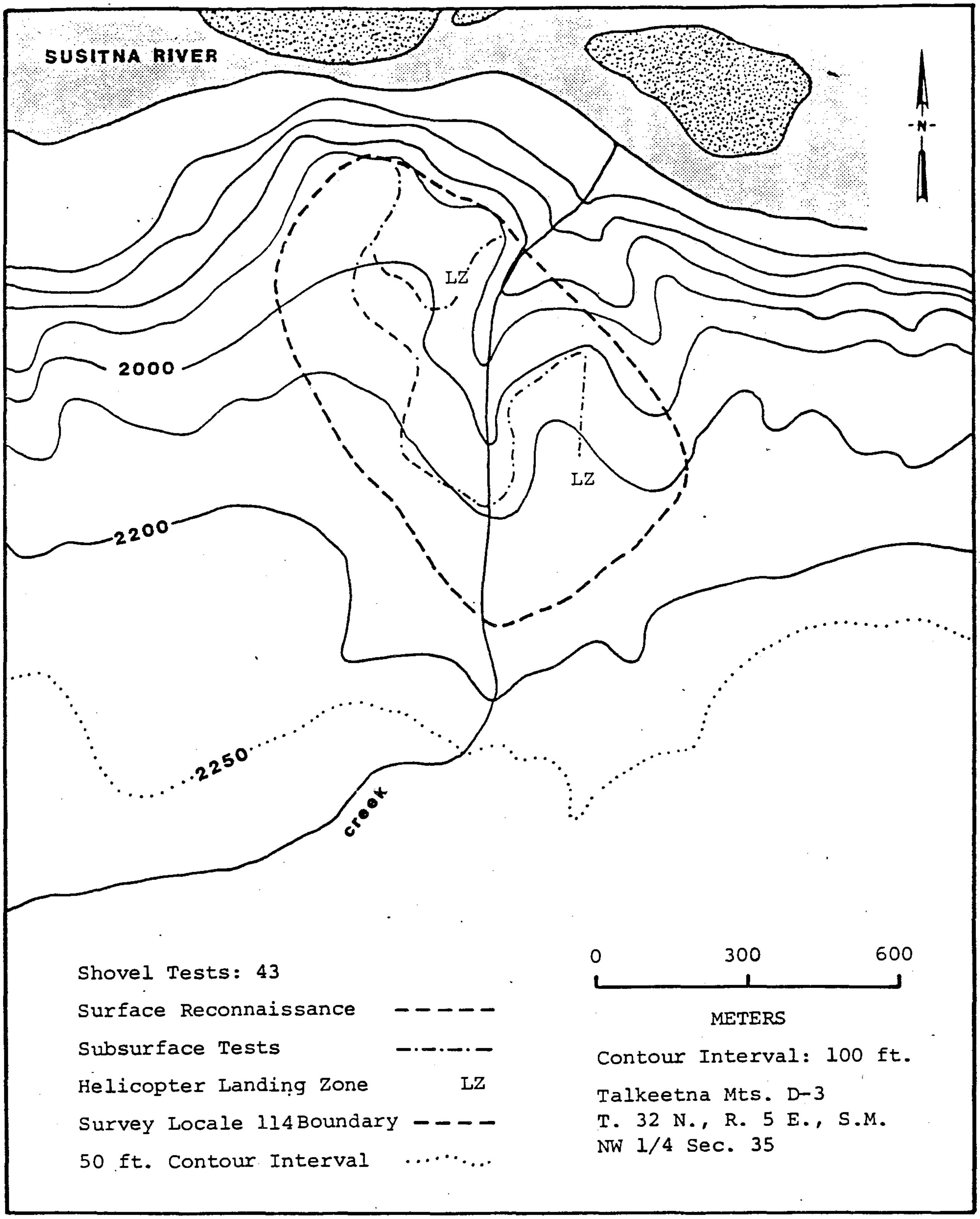


Figure A.68. Surface Reconnaissance and Subsurface Testing in Survey Locale 114.

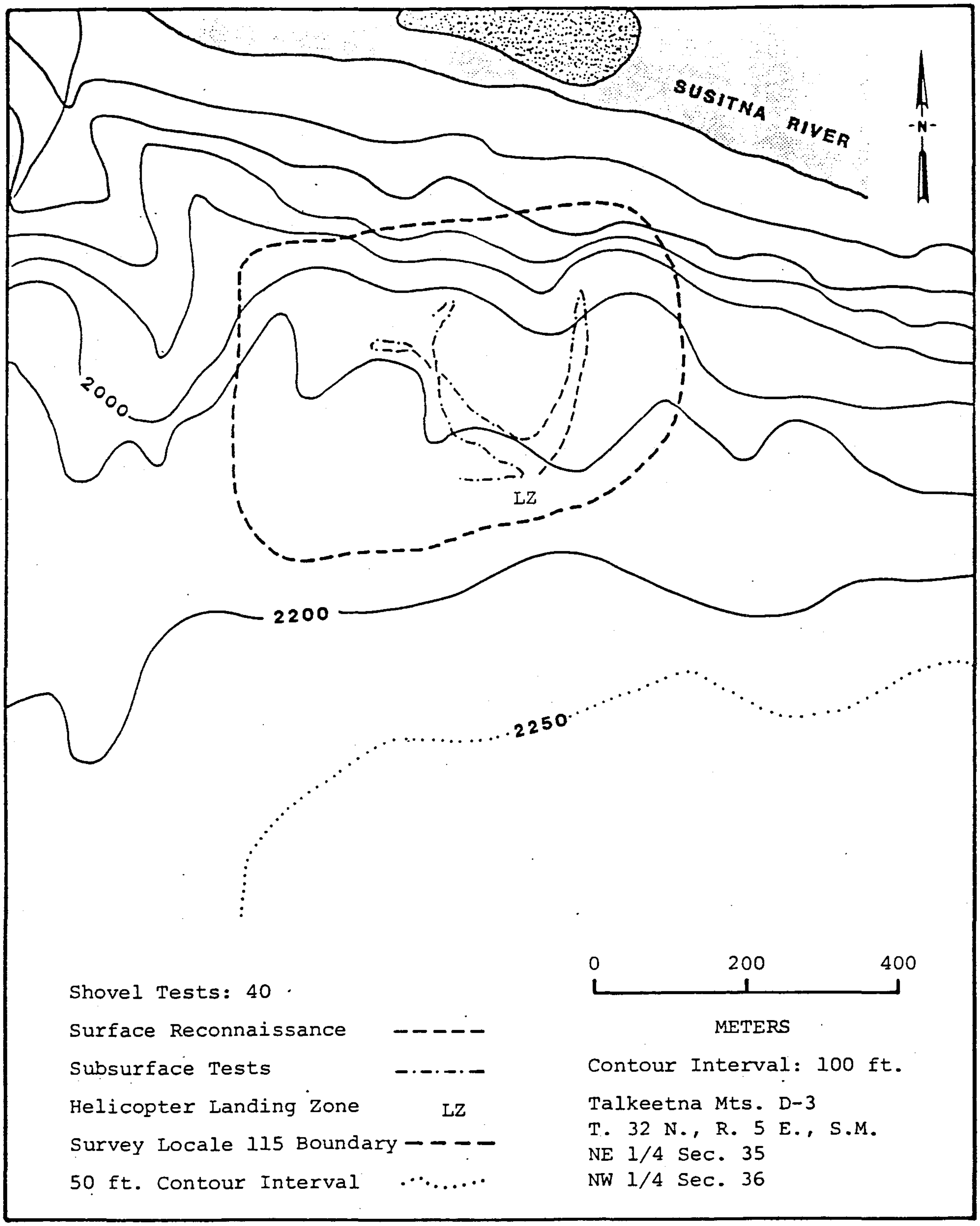


Figure A.69. Surface Reconnaissance and Subsurface Testing in Survey Locale 115.

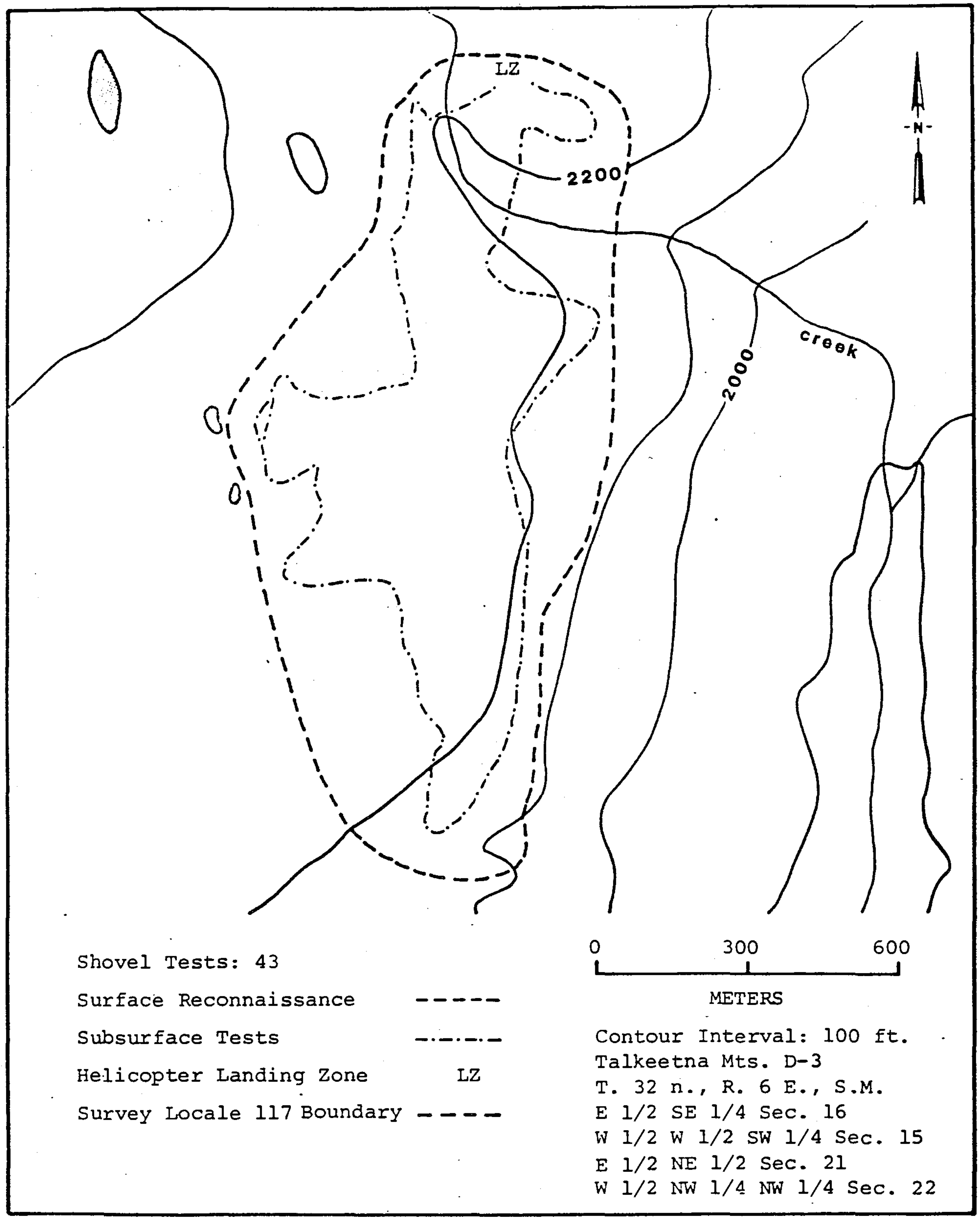


Figure A.70. Surface Reconnaissance and Subsurface Testing in Survey Locale 117.

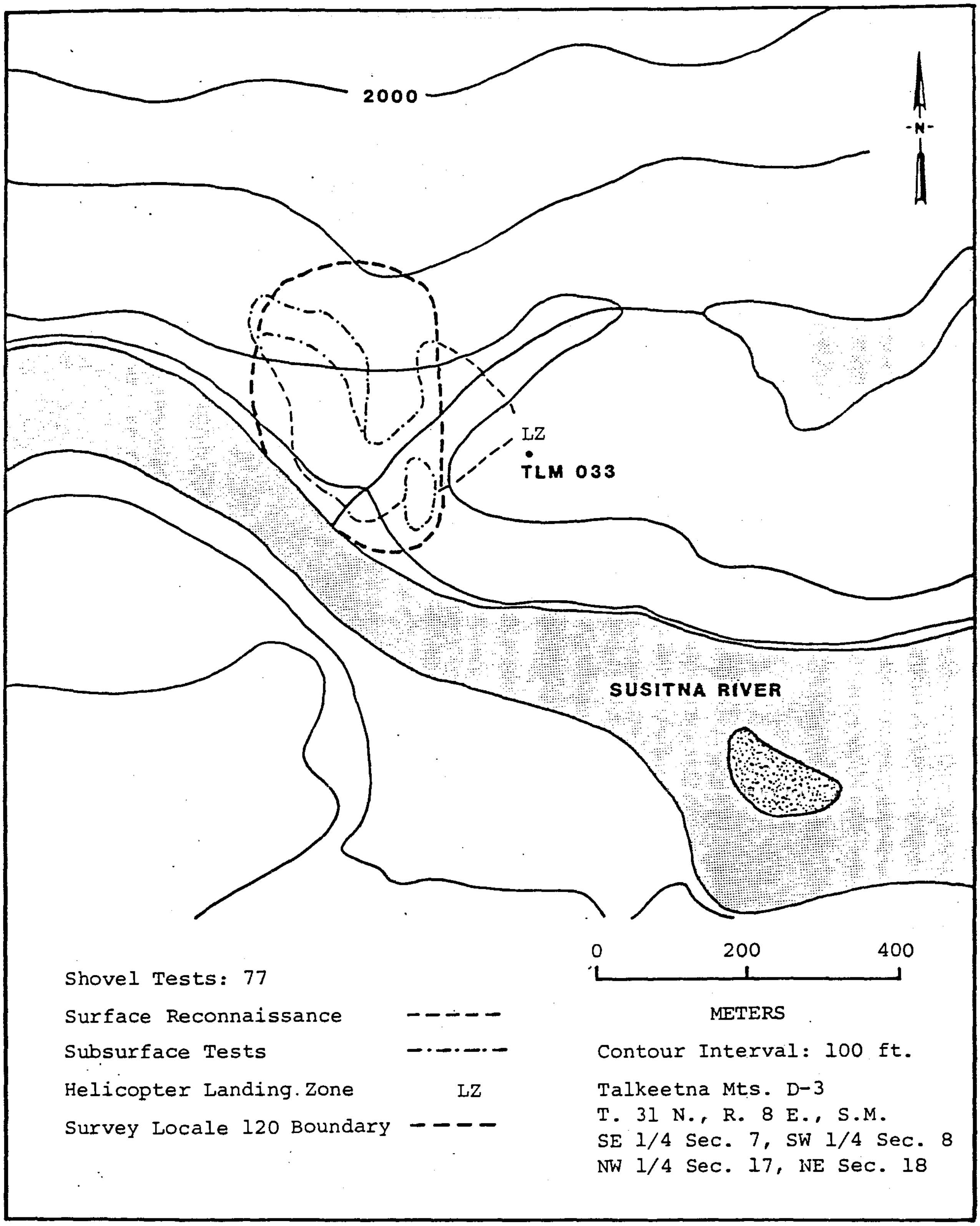


Figure A.71. Surface Reconnaissance and Subsurface Testing in Survey Locale 120.

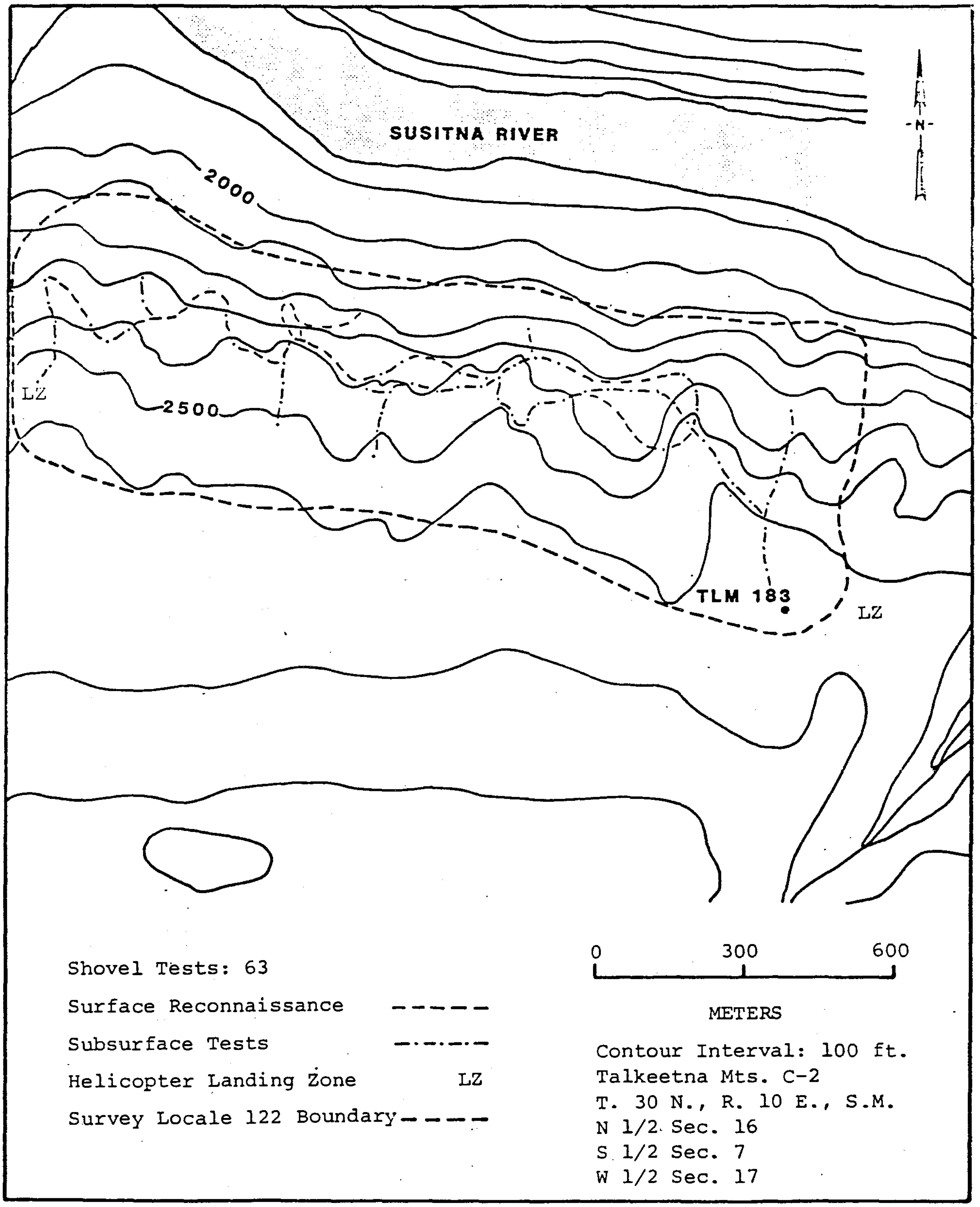
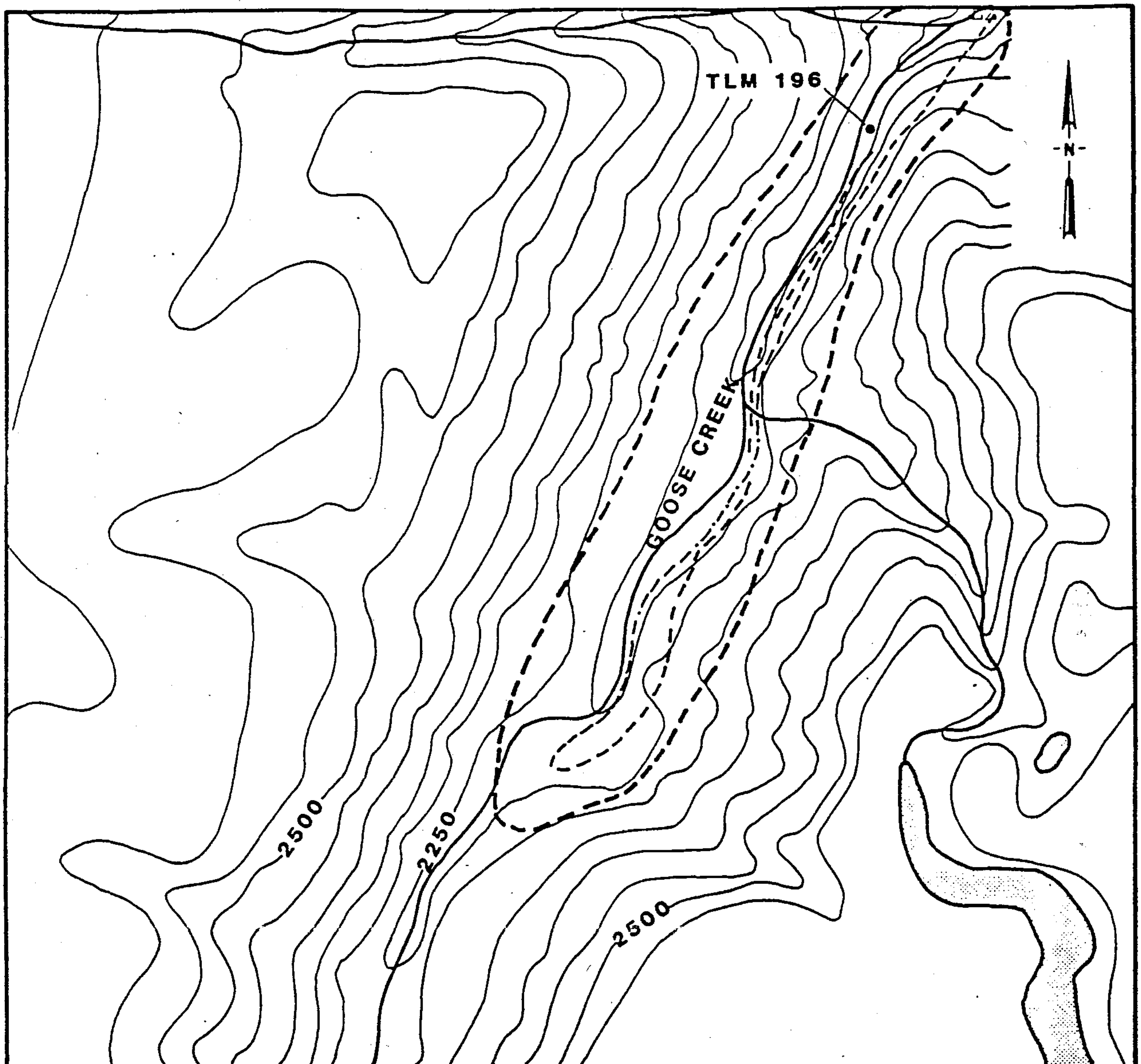


Figure A.72. Surface Reconnaissance and Subsurface Testing in Survey Locale 122.



Shovel Tests: 10

Surface Reconnaissance - - - - -

Subsurface Tests -.-.-.-

Helicopter Landing Zone LZ

Survey Local 123 Boundary - - - -

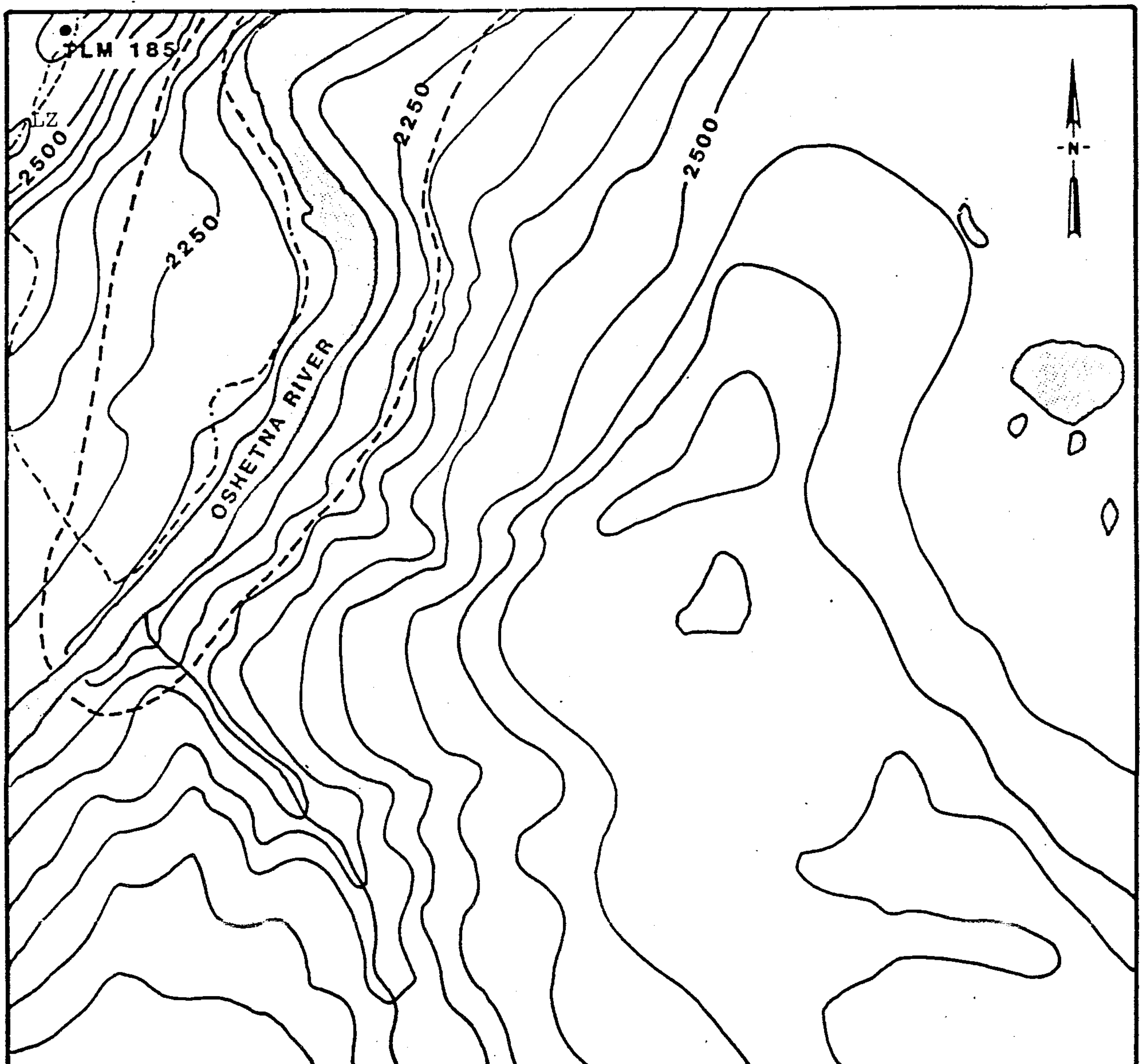
0 300 600

METERS

Contour Interval: 50 ft.

Talkeetna Mts. C-1
T.29 N., R. 11 E., S.M.
E 1/2 Sec. 6
NW 1/4 Sec. 5

Figure A.73. Surface Reconnaissance and Subsurface Testing in Survey Locale 123.



Shovel Tests: 151 (124 A)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 124 Boundary — — — —

0 300 600

METERS

Contour Interval: 50 ft.
Talkeetna Mts. C-1
T. 29 N., R. 11 E., S.M.
NW 1/4 Sec. 3, SE 1/4 Sec. 3
NW 1/4 Sec. 10
SW 1/4 Sec. 10

Figure A.74. Surface Reconnaissance and Subsurface Testing in Survey Locale 124.

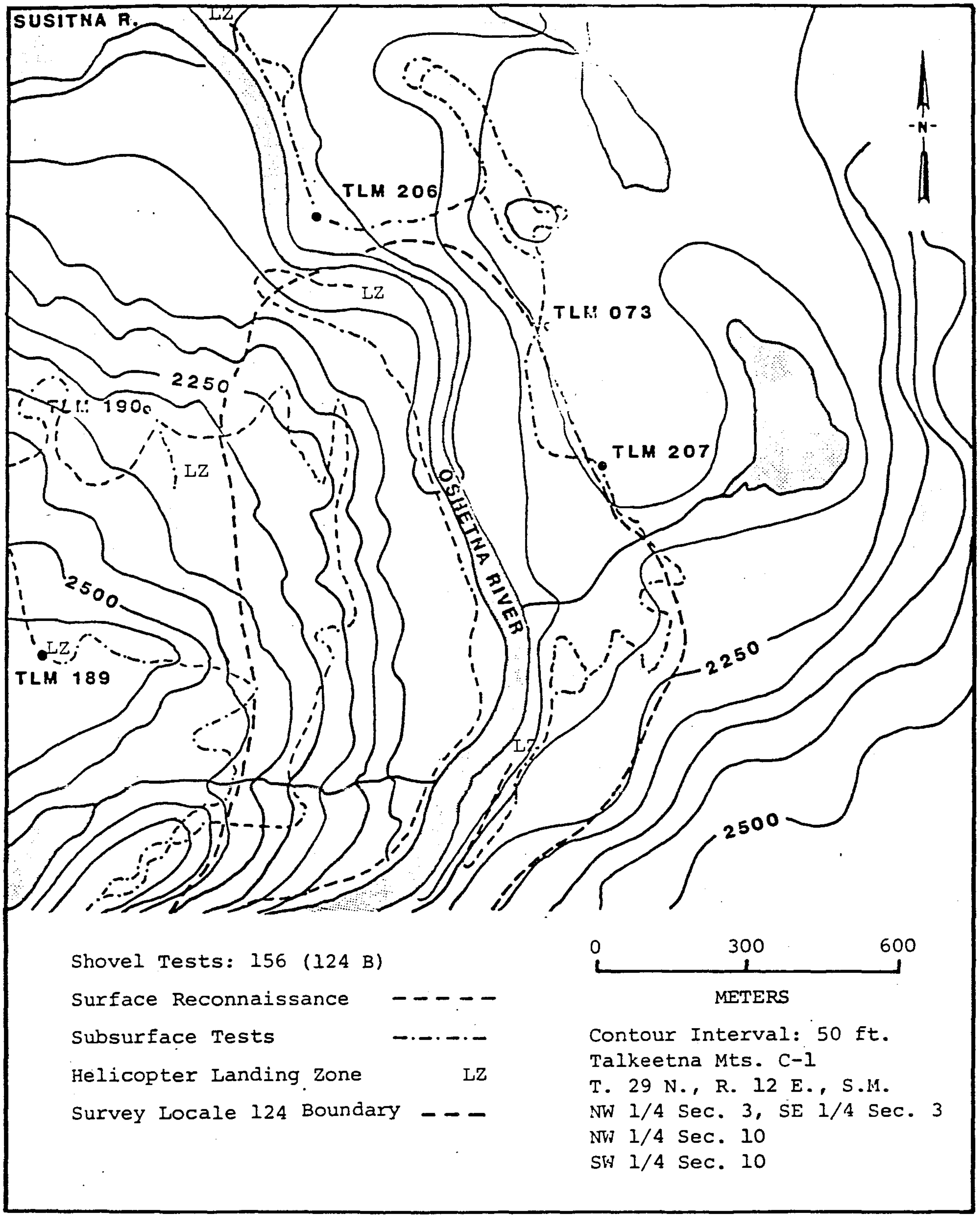
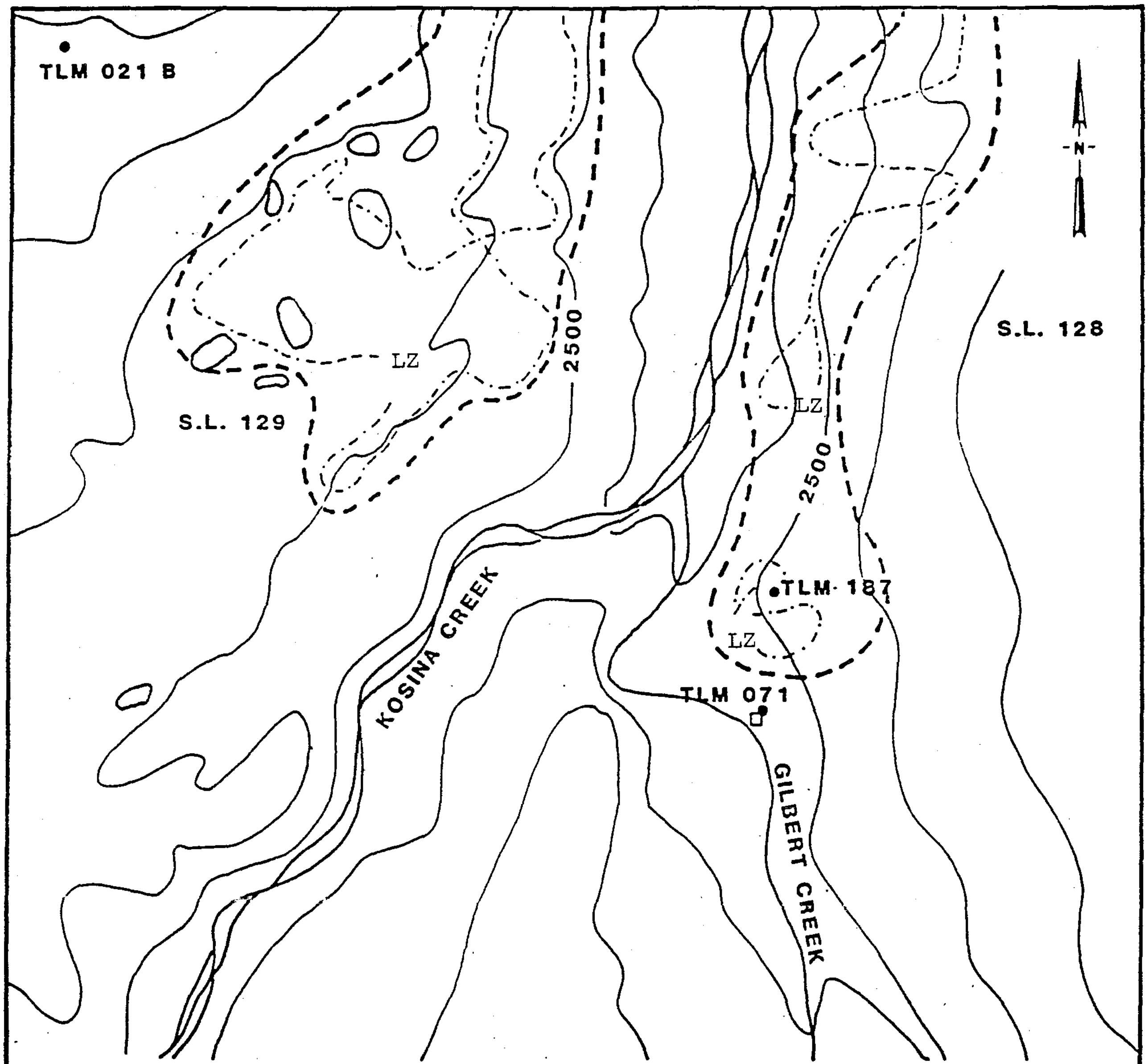


Figure A.75. Surface Reconnaissance and Subsurface Testing in Survey Locale 124.



Shovel Tests: 1690 (Total)

Surface Reconnaissance - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 128 & 129 Boundary — —

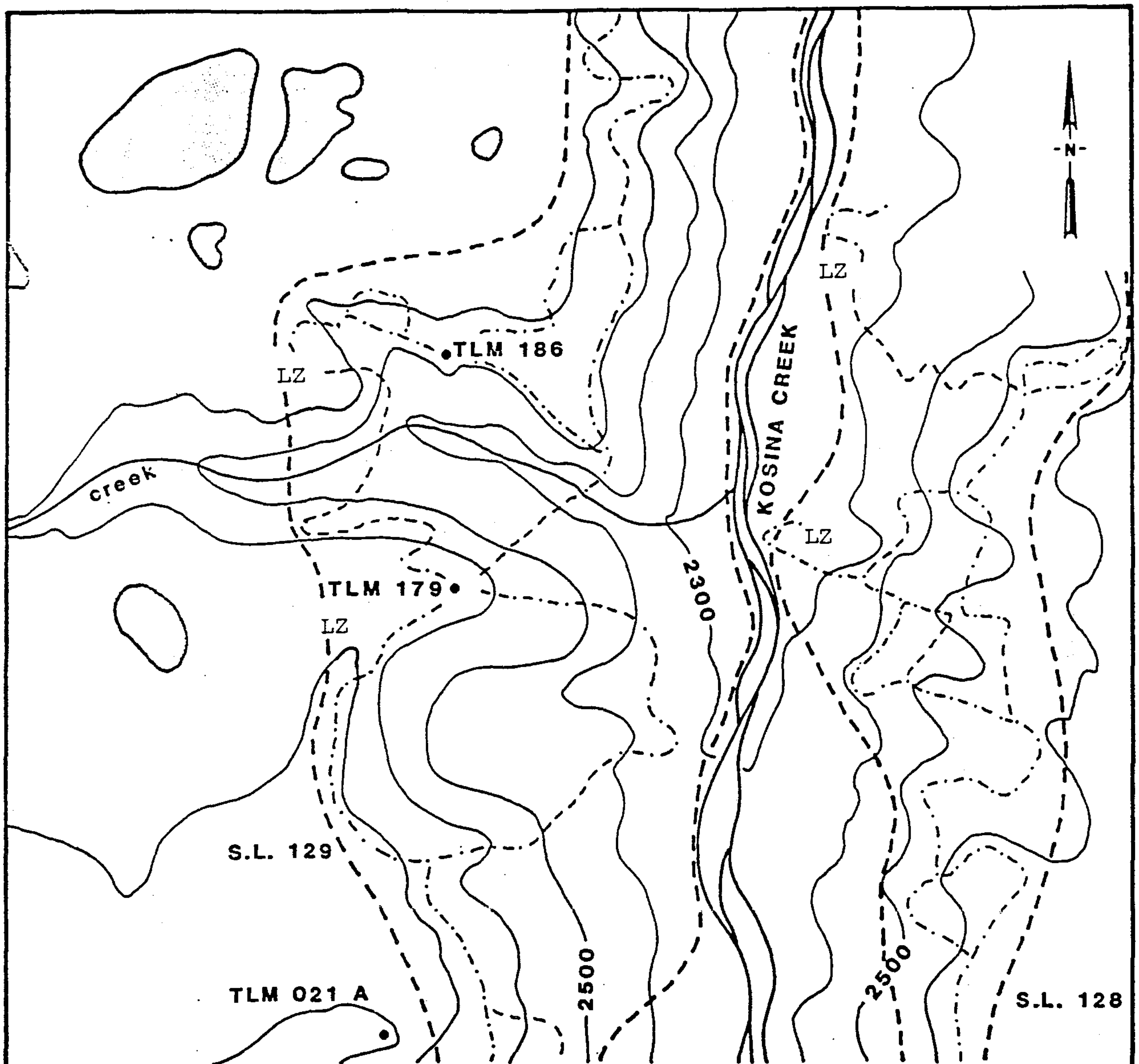
0 300 600

METERS

Contour Interval: 100 ft.

Talkeetna Mts. C-2
T. 30 N., R. 8 E., S.M.
E 1/2 Sec. 8, Sec. 9

Figure A.76. Surface Reconnaissance and Subsurface Testing in Survey Locales 128 and 129.



0 300 600
METERS

Shovel Tests: 1690 (Total)

Surface Reconnaissance - - - - -

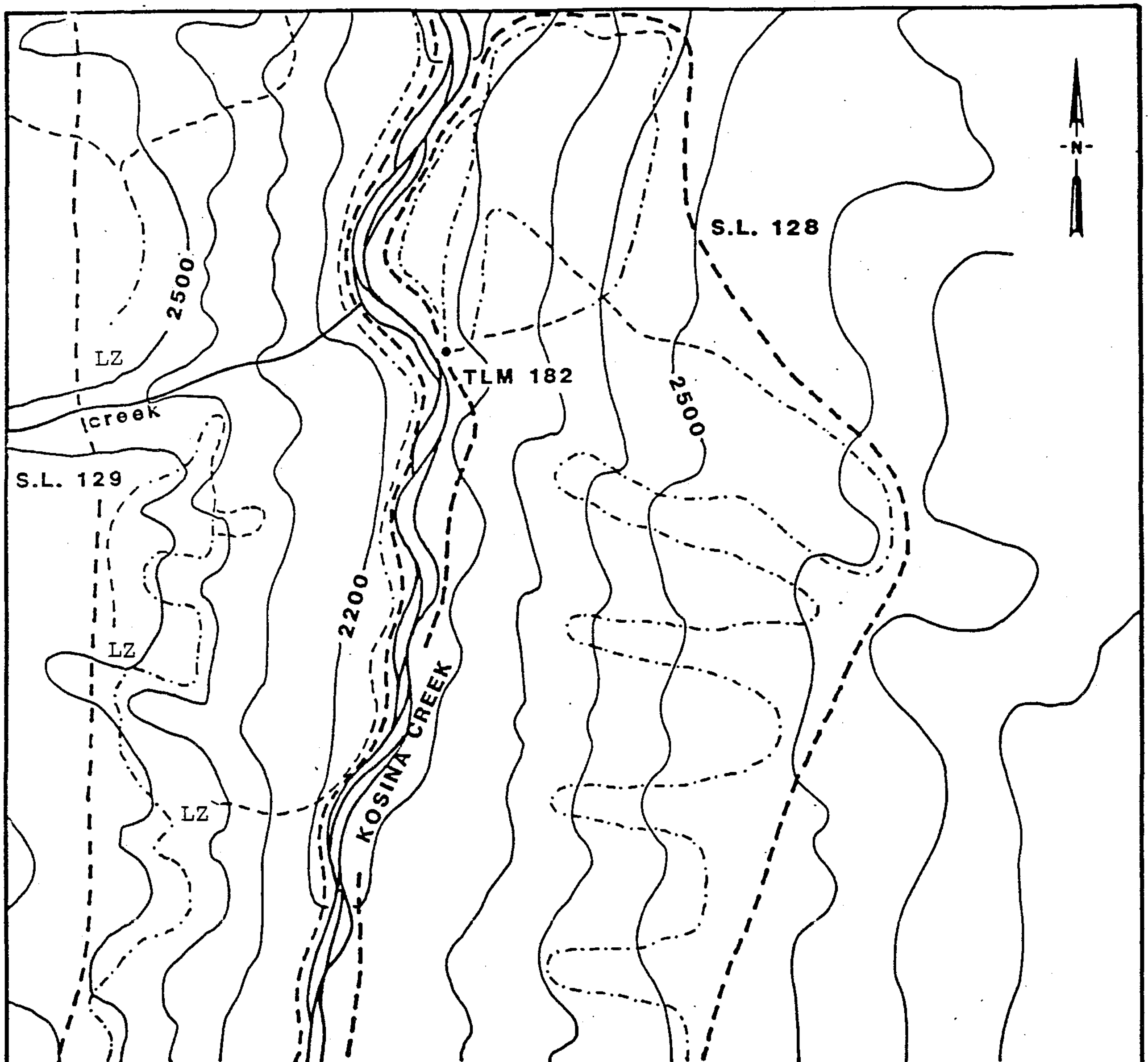
Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 128 & 129 Boundary — —

Contour Interval: 100 ft.
Talkeetna Mts. C-2
T. 31 N., R 8 E., S.M.
E 1/2 Sec. 32, Sec. 33
T. 30 N., R. 8 E., S.M.
E 1/2 Sec. 5, Sec. 4

Figure A.77. Surface Reconnaissance and Subsurface Testing in Survey Locales 128 and 129.



Shovel Tests: 1690 (Total)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 128 & 129 Boundary — — —

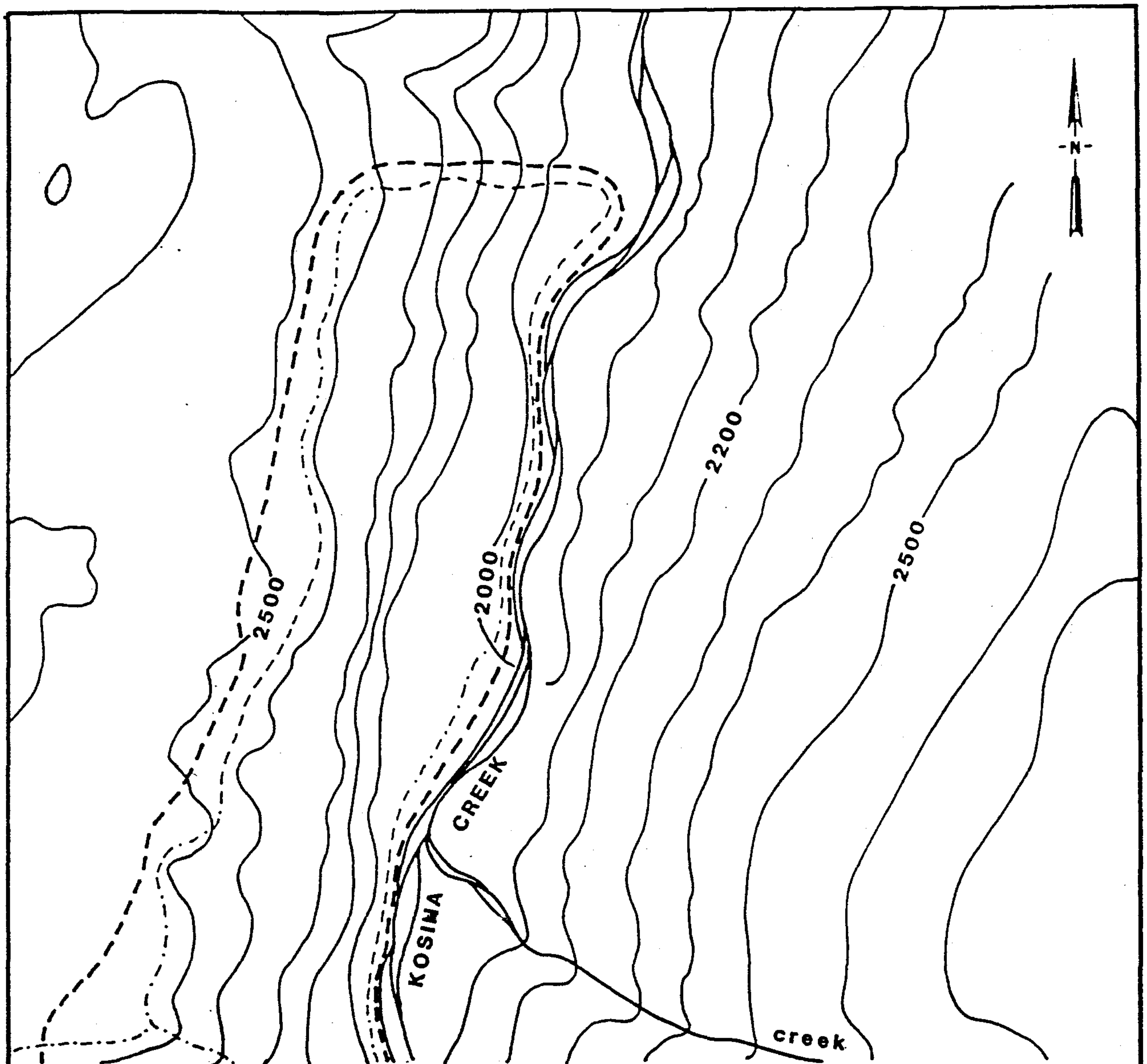
0 300 600

METERS

Contour Interval: 100 ft.

Talkeetna Mts. C-2
T. 31 N., R. 8 E., S.M.
SW 1/4 Sec. 28

Figure A.78. Surface Reconnaissance and Subsurface Testing in Survey Locales 128 and 129.



Shovel Tests: 1690 (Total)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 129 Boundary — — — —

0 300 600

METERS

Contour Interval: 100 ft.

Talkeetna Mts. C-2
T. 31 N., R. 8 E., S.M.
SW 1/4 Sec. 21, SW 1/4 Sec.22
W. 1/2 Sec. 27, Sec. 28

Figure A.79. Surface Reconnaissance and Subsurface Testing in Survey Locale 129.

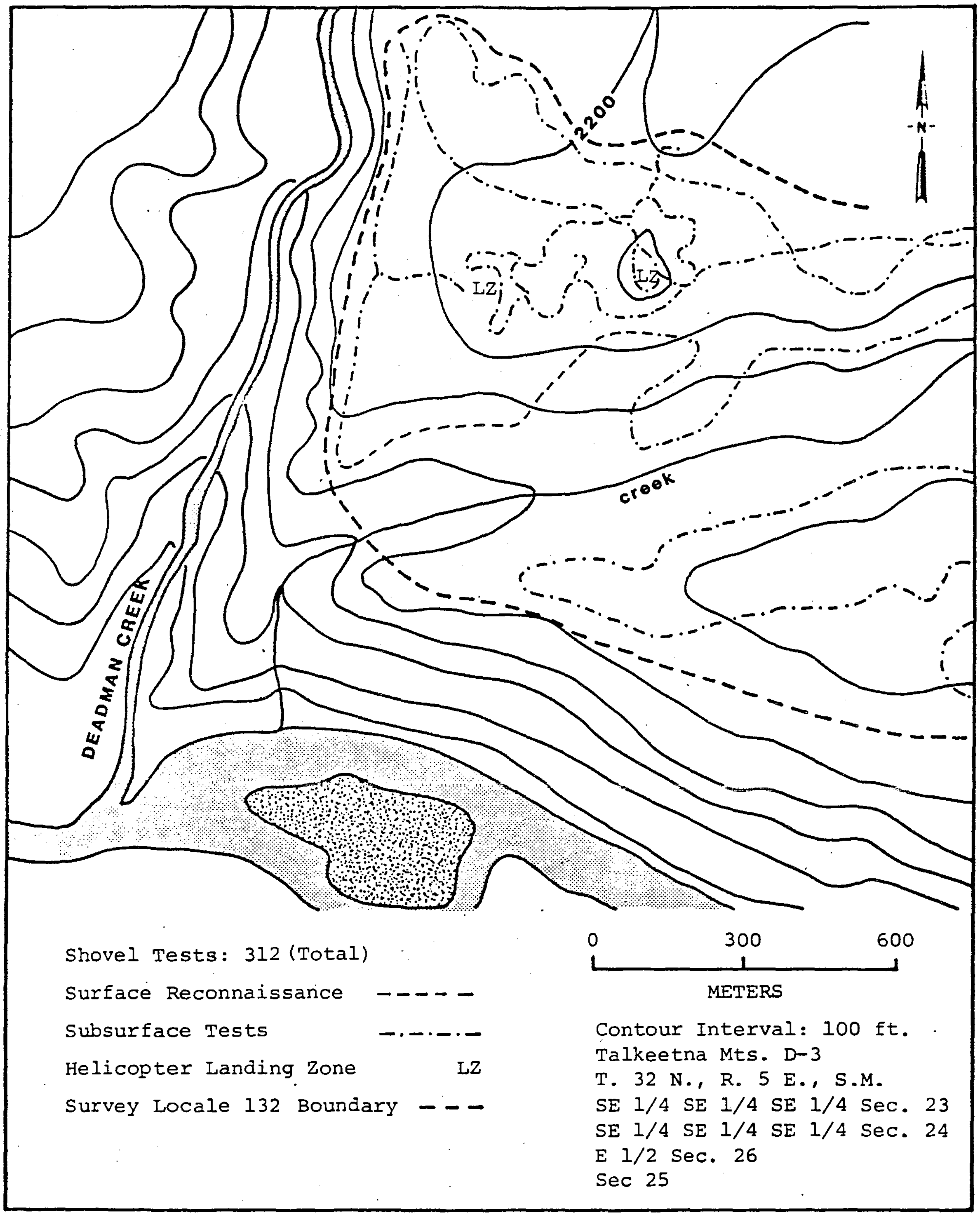
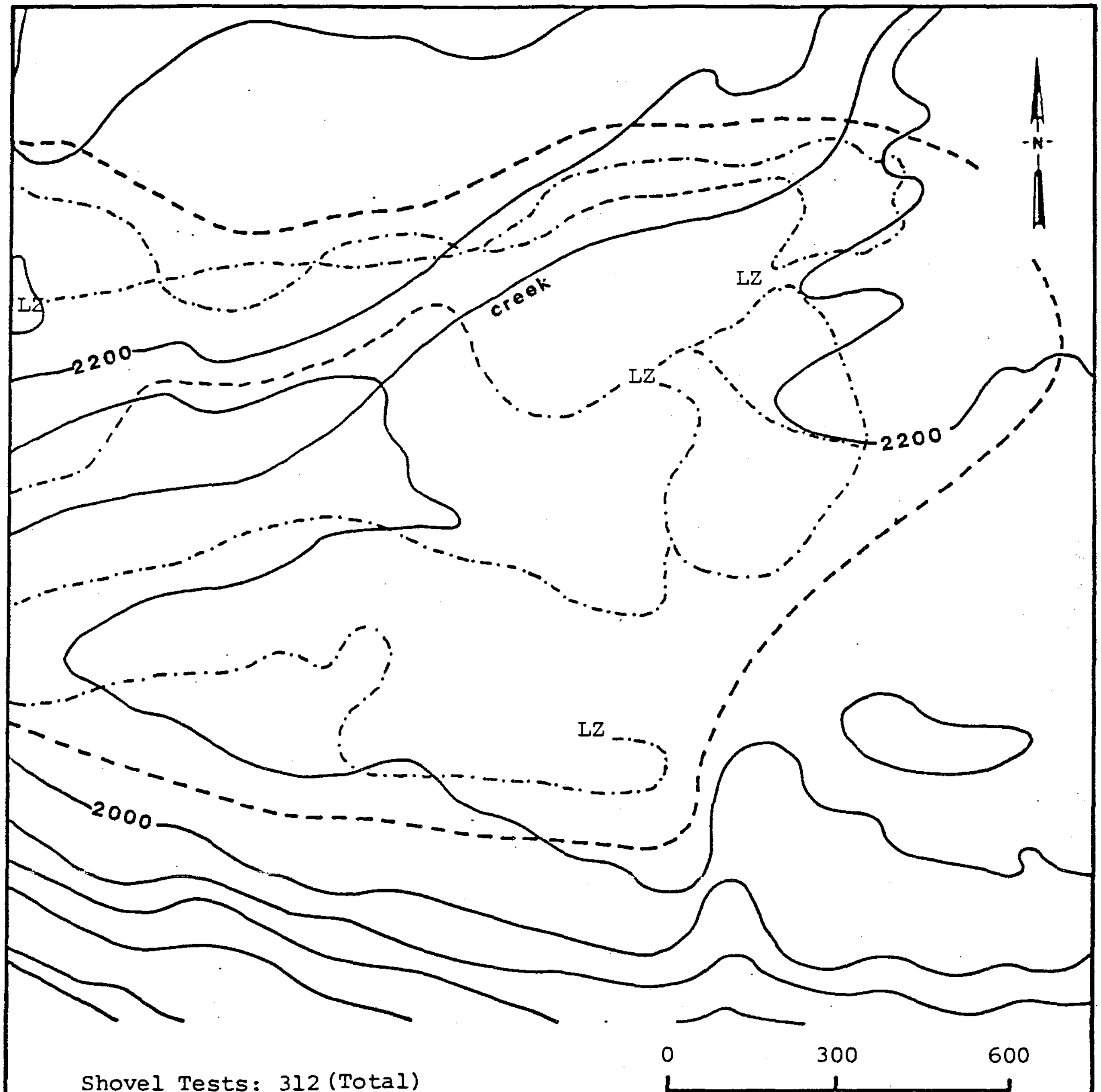


Figure A.80. Surface Reconnaissance and Subsurface Testing in Survey Locale 132.



Shovel Tests: 312 (Total)

Surface Reconnaissance ------

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 132 Boundary ----

Contour Interval: 100 ft.
Talkeetna Mts. D-3
T. 32 N. R. 5 E., S.M.
SE 1/4 SE 1/4 SE 1/4 Sec. 23
SE 1/4 SE 1/4 SE 1/4 Sec. 24
E 1/2 Sec. 26
Sec. 25

Figure A.81. Surface Reconnaissance and Subsurface Testing in Survey Locale 132.

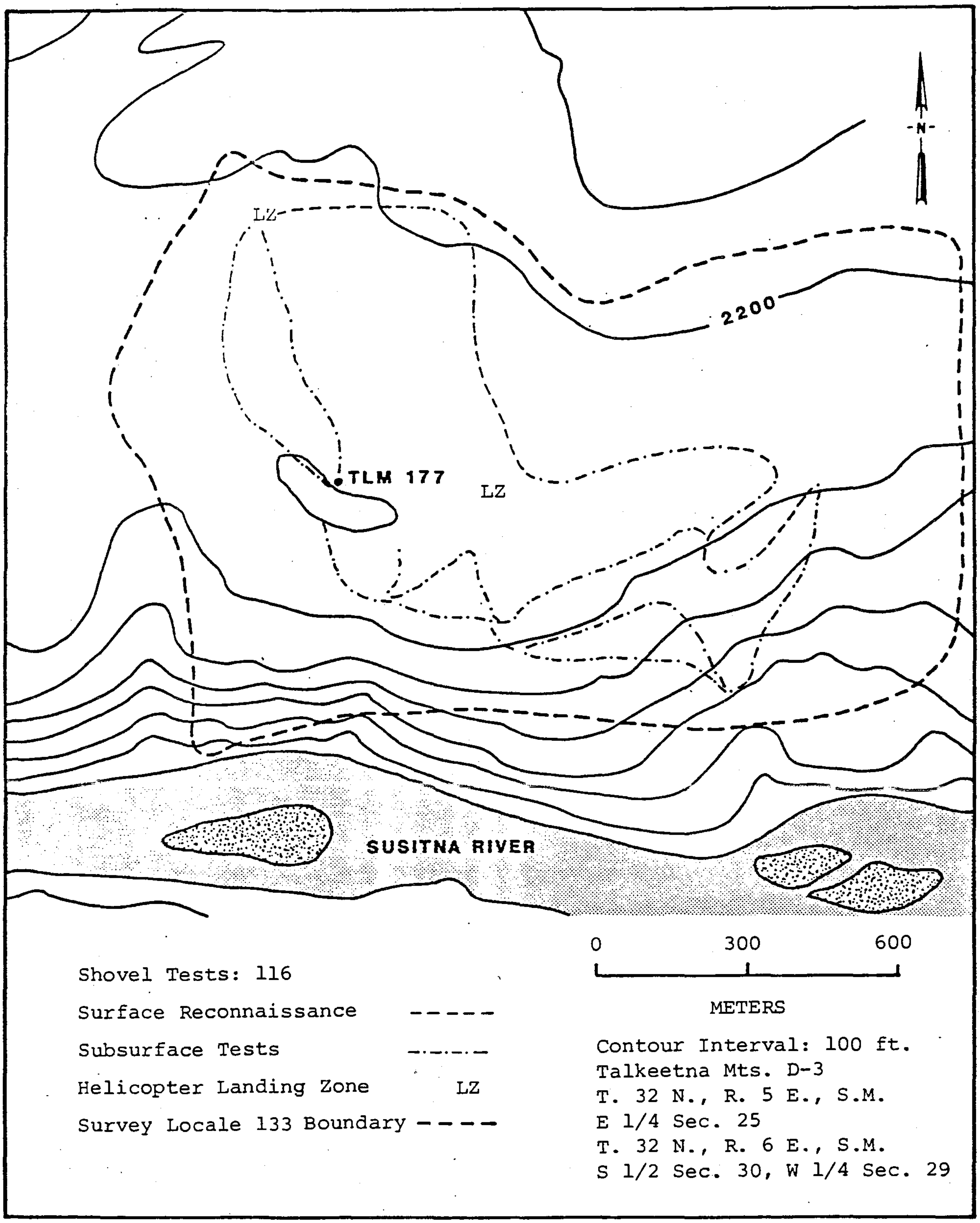


Figure A.82. Surface Reconnaissance and Subsurface Testing in Survey Locale 133.

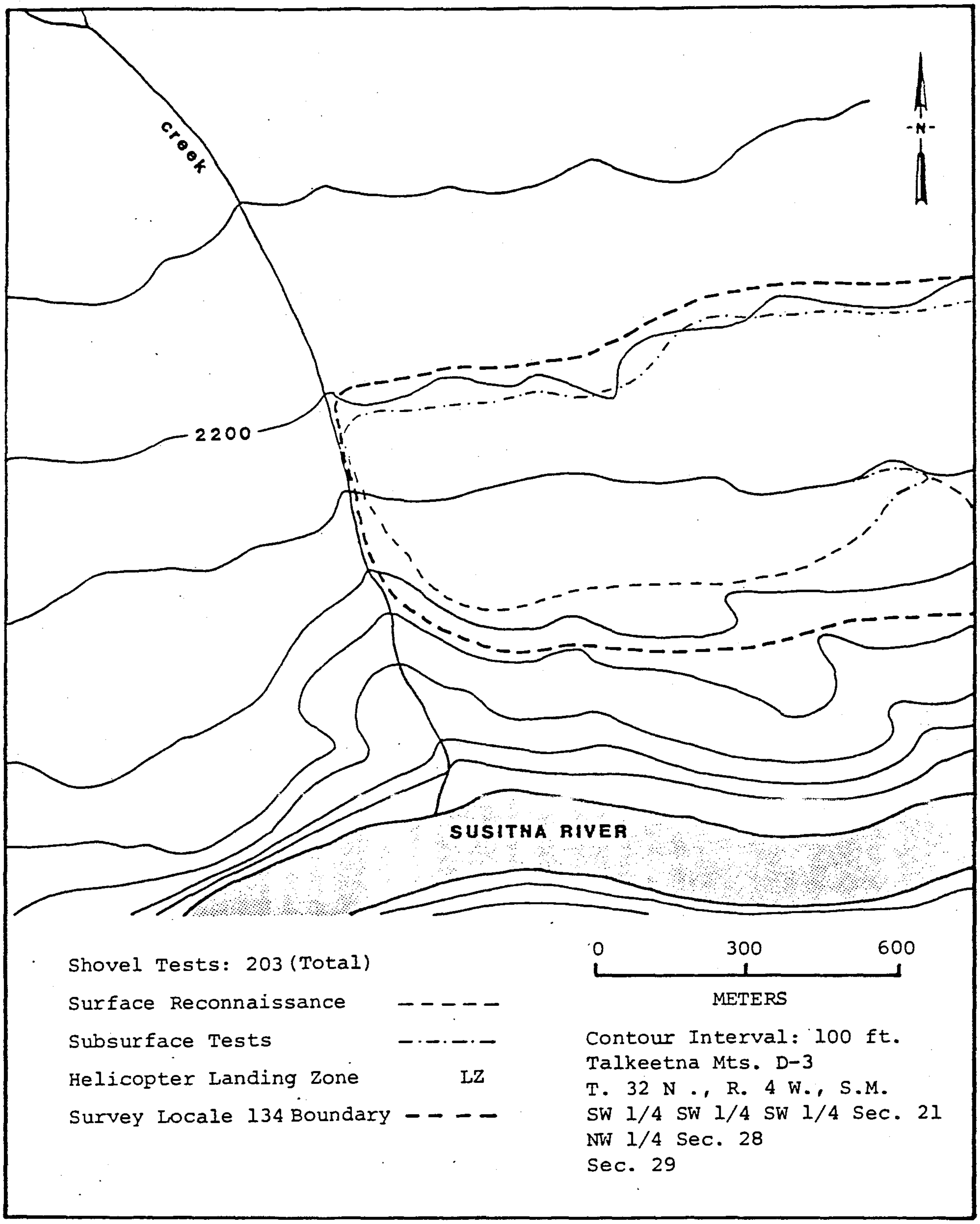
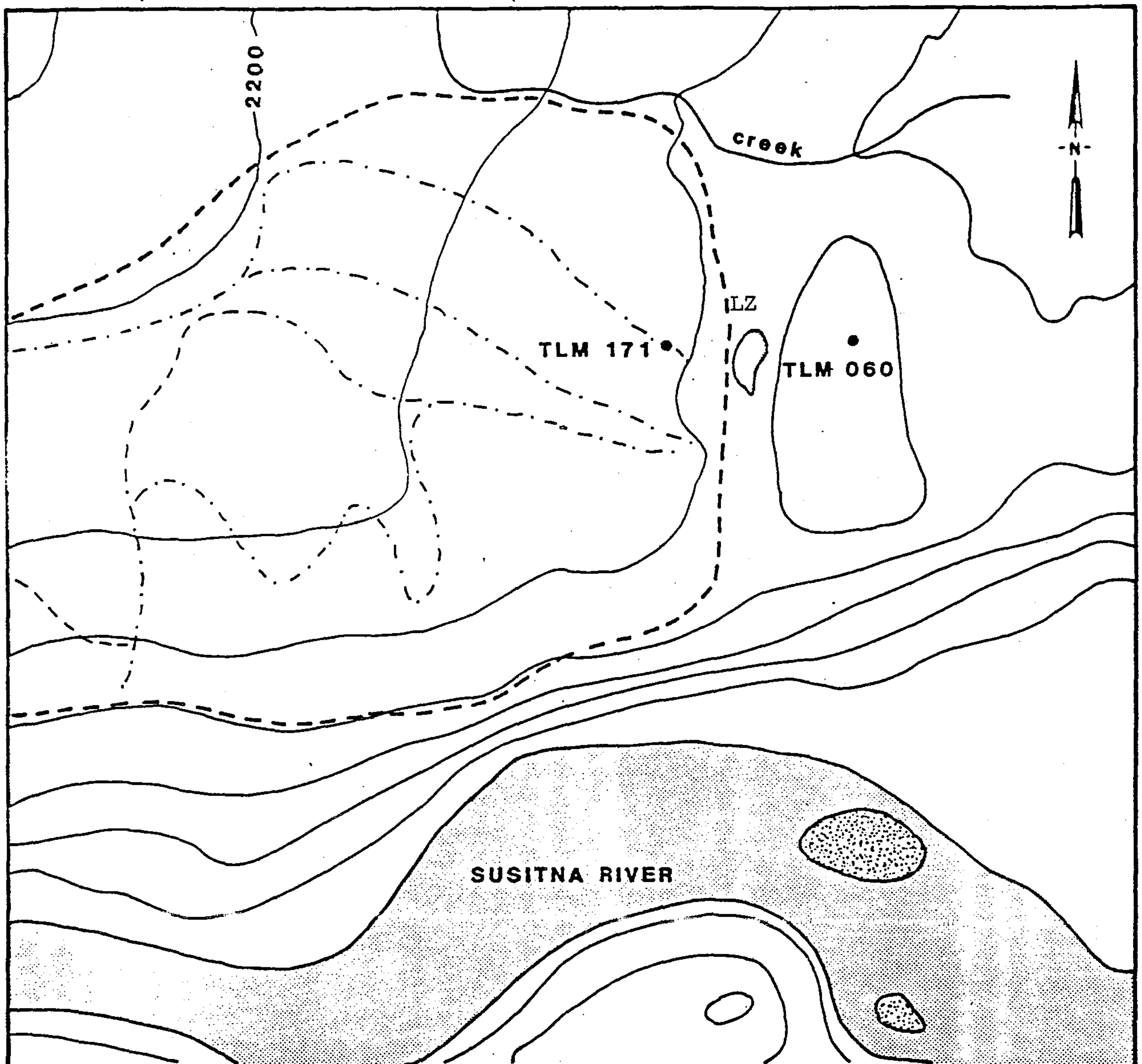


Figure A.83. Surface Reconnaissance and Subsurface Testing in Survey Locale 134.



Shovel Tests: 203 (Total)

Surface Reconnaissance - - - - -

Subsurface Tests -.-.-.-

Helicopter Landing Zone LZ

Survey Locale 134 Boundary— — — —

0 300 600

METERS

Contour Interval: 100 ft.
Talkeetna Mts. D-3
T. 32 N., R. 4 W., S.M.
SW 1/4 SW 1/4 SW 1/4 Sec. 21
NW 1/4 Sec. 28
Sec. 29

Figure A.84. Surface Reconnaissance and Subsurface Testing in Survey Locale 134.

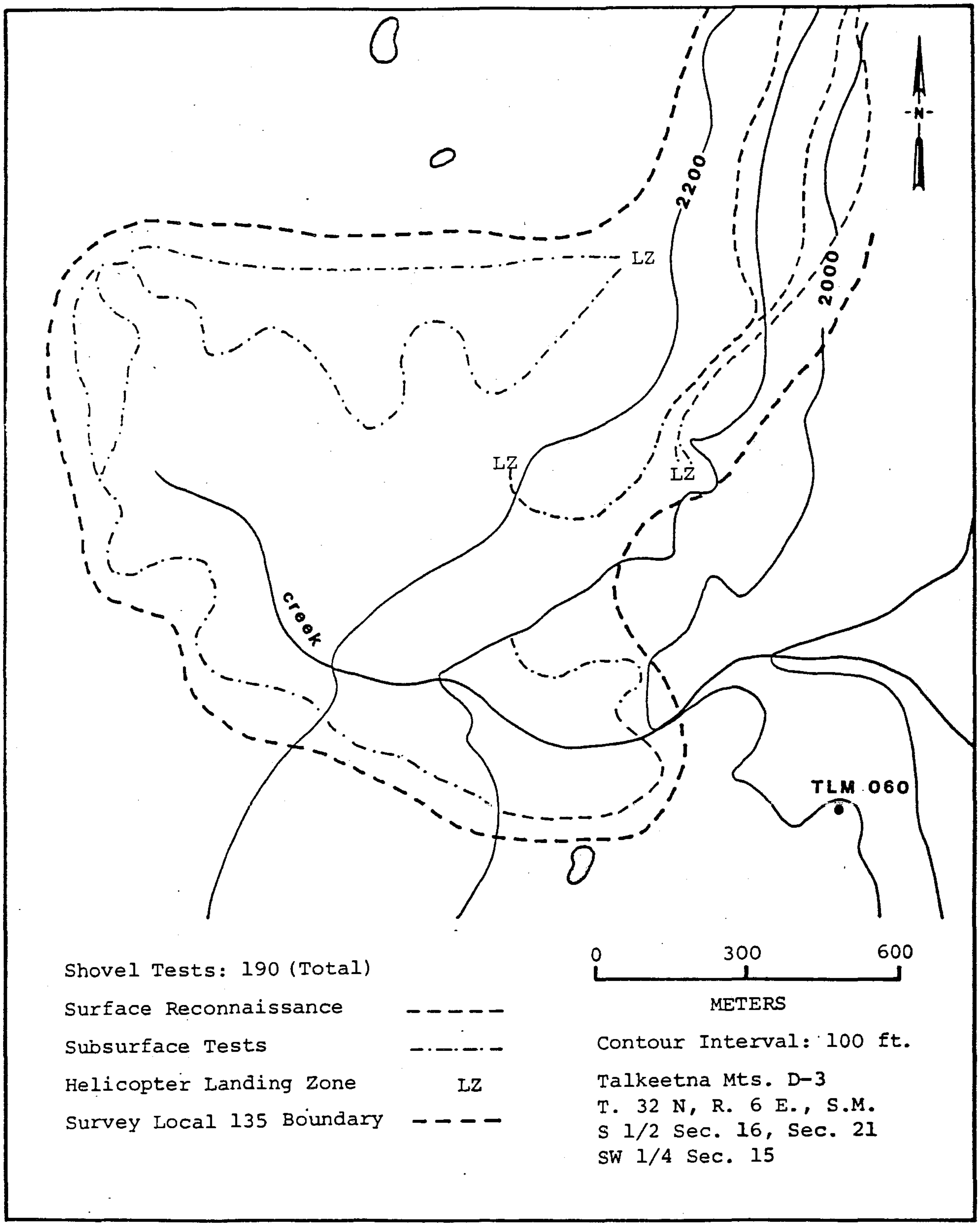


Figure A.85. Surface Reconnaissance and Subsurface Testing in Survey Locale 135.

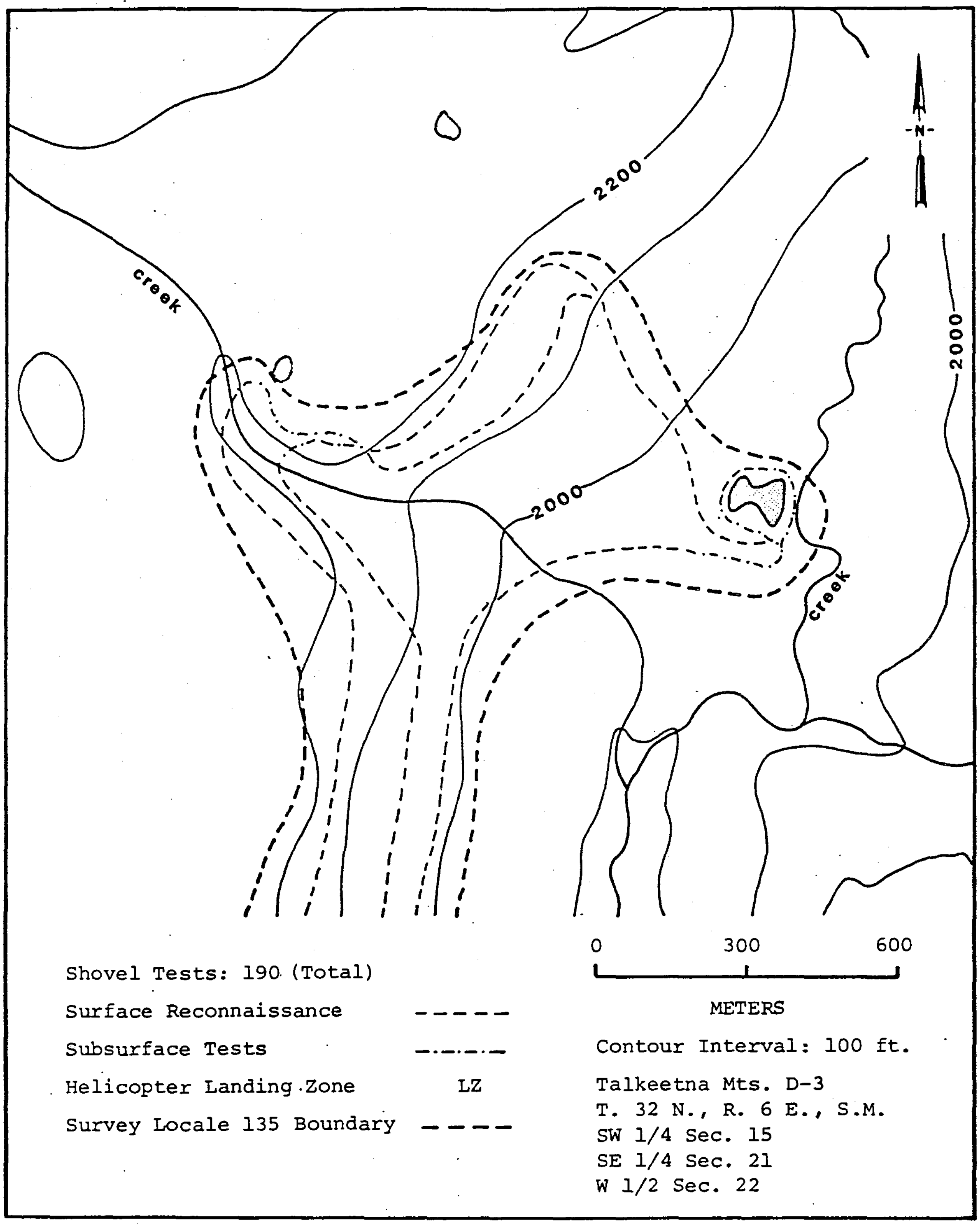


Figure A.86. Surface Reconnaissance and Subsurface Testing in Survey Locale 135.

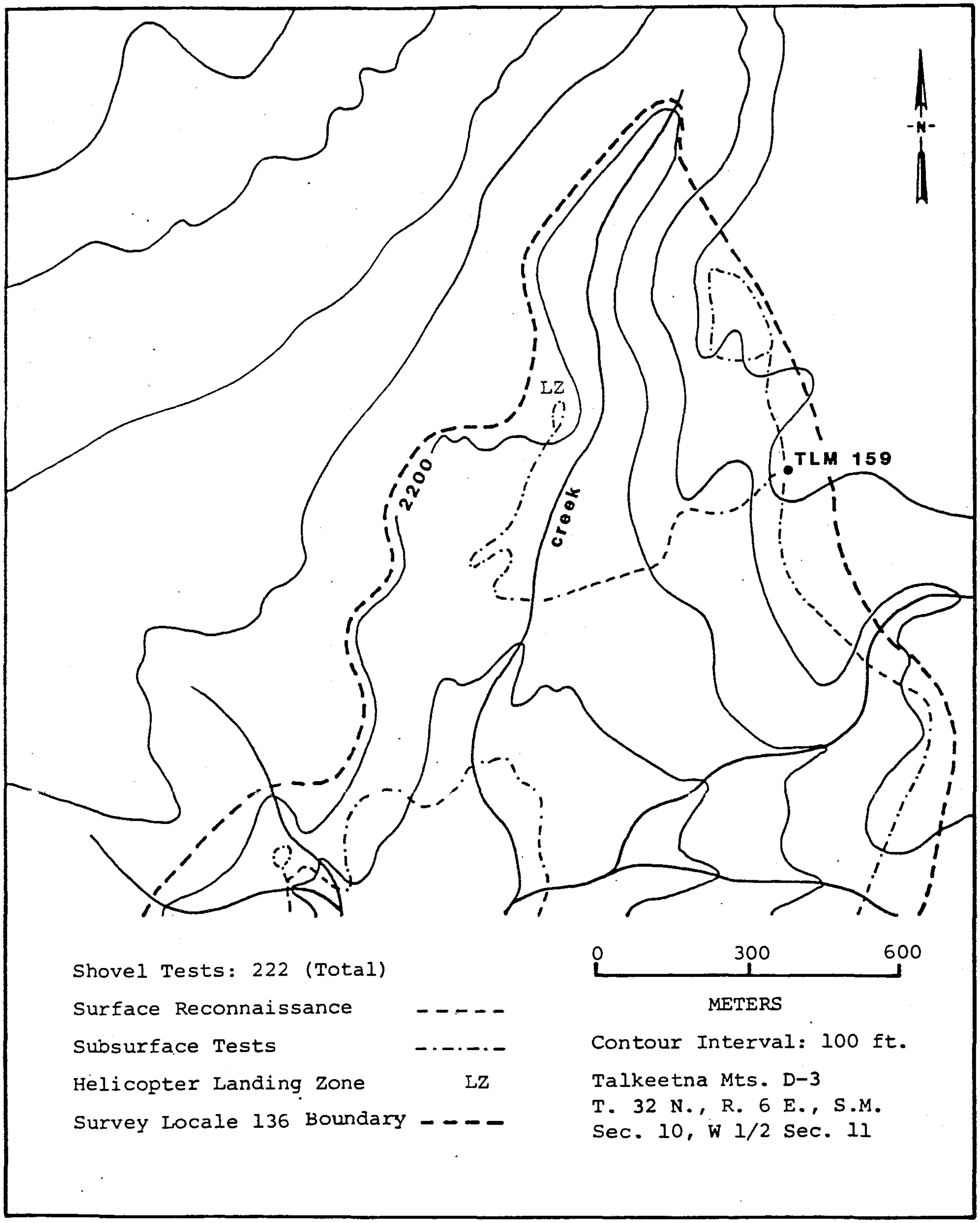


Figure A.87. Surface Reconnaissance and Subsurface Testing in Survey Locale 136.

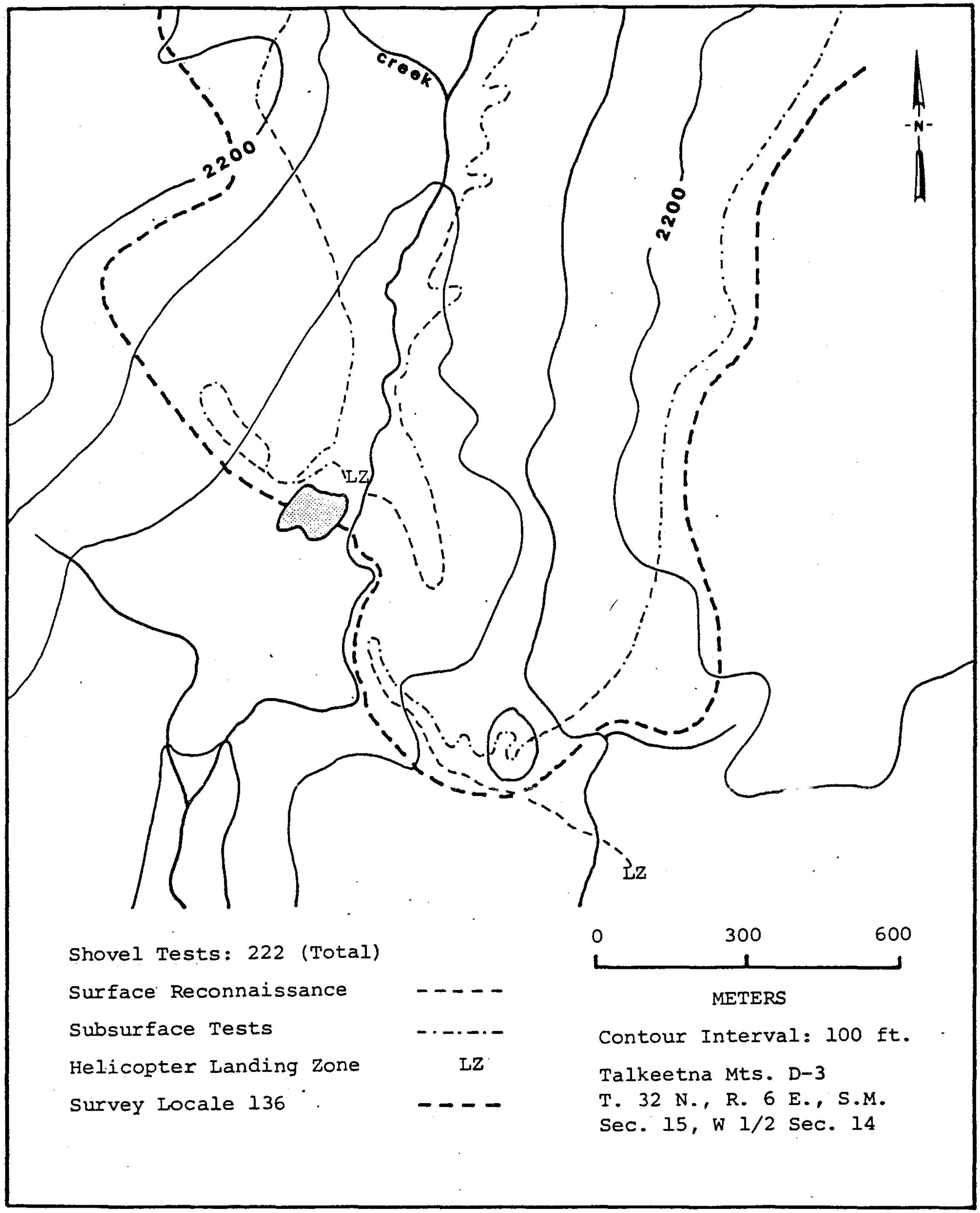


Figure A.88. Surface Reconnaissance and Subsurface Testing in Survey Locale 136.

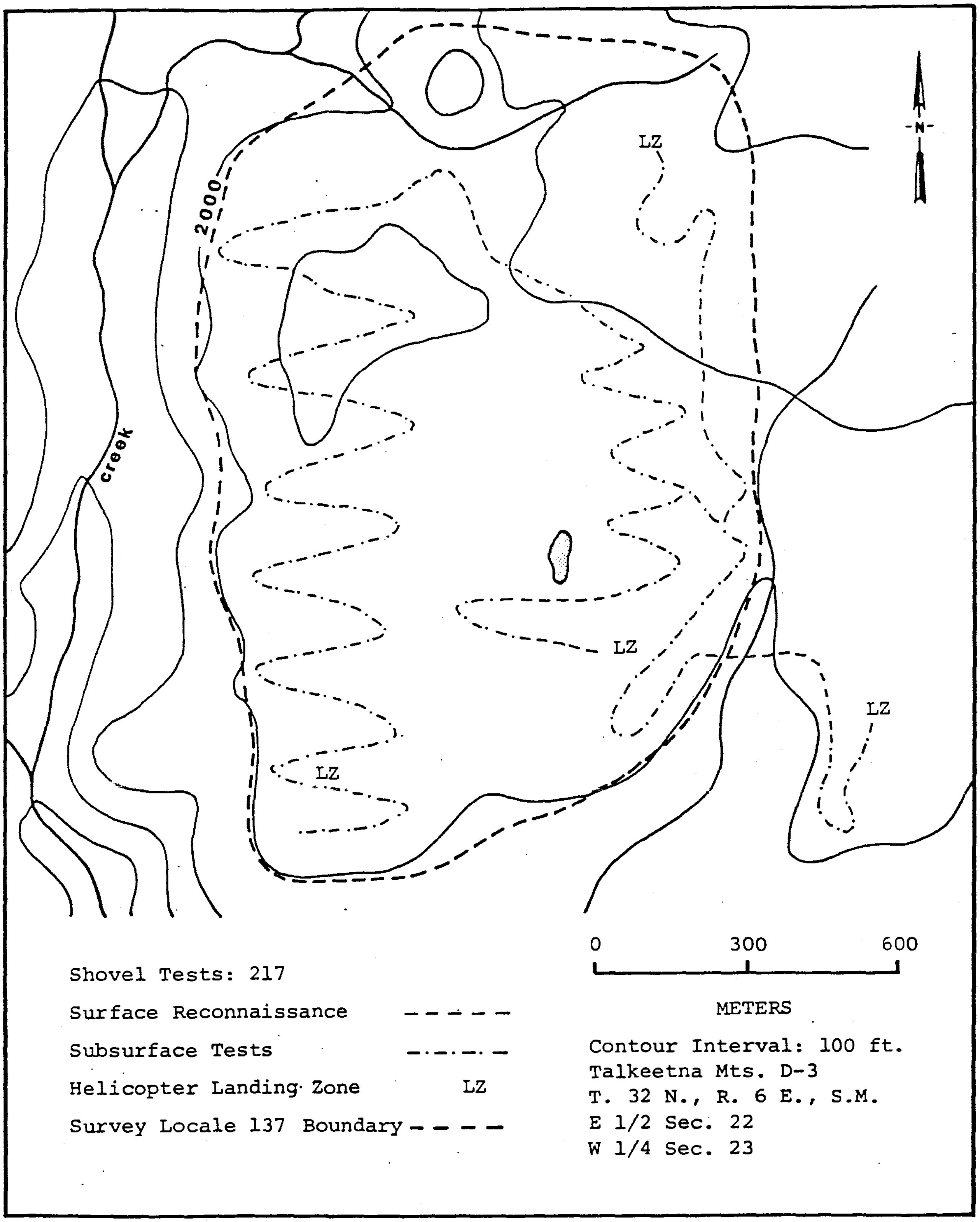


Figure A.89. Surface Reconnaissance and Subsurface Testing in Survey Locale 137.

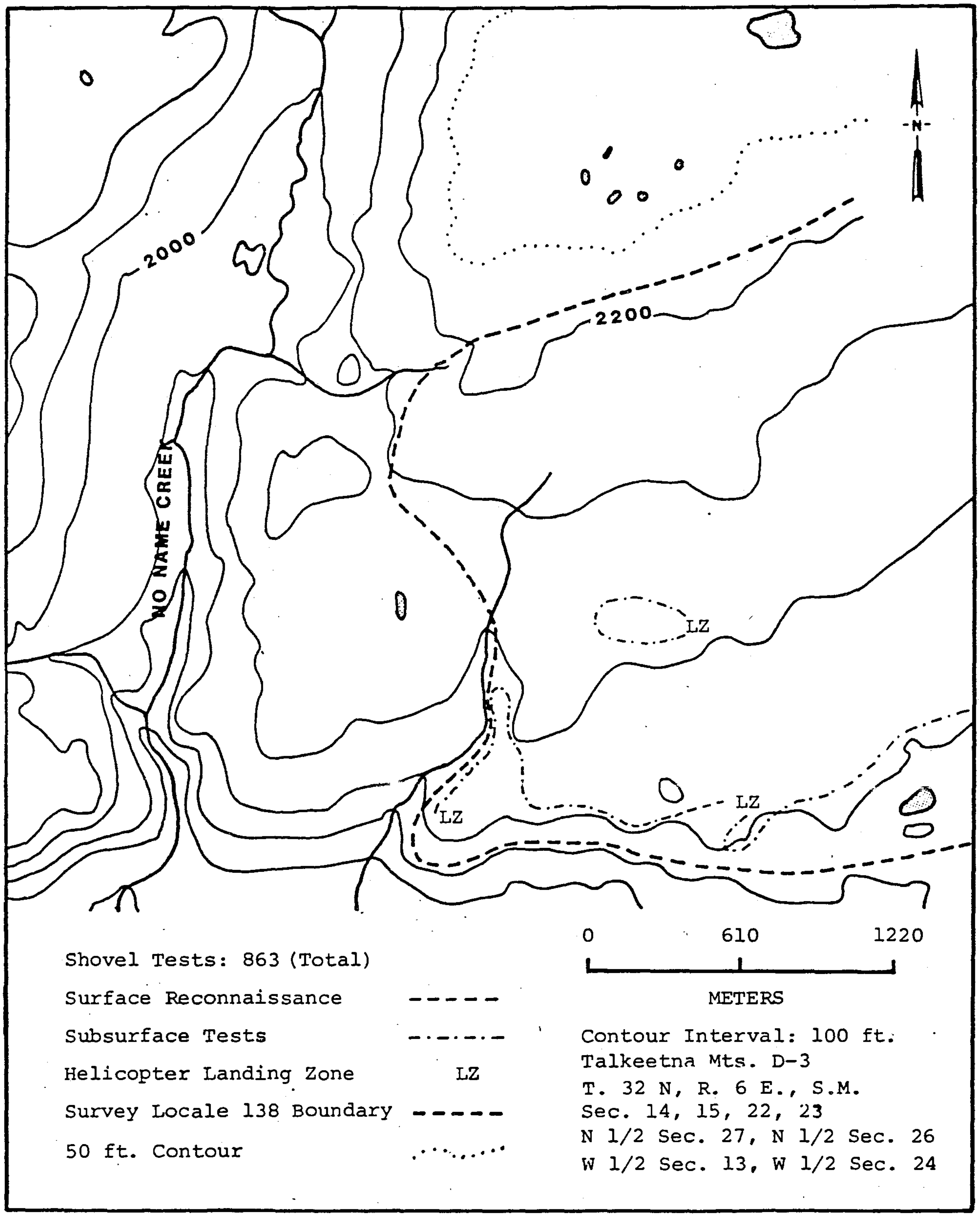


Figure A.90. Surface Reconnaissance and Subsurface Testing in Survey Locale 138.

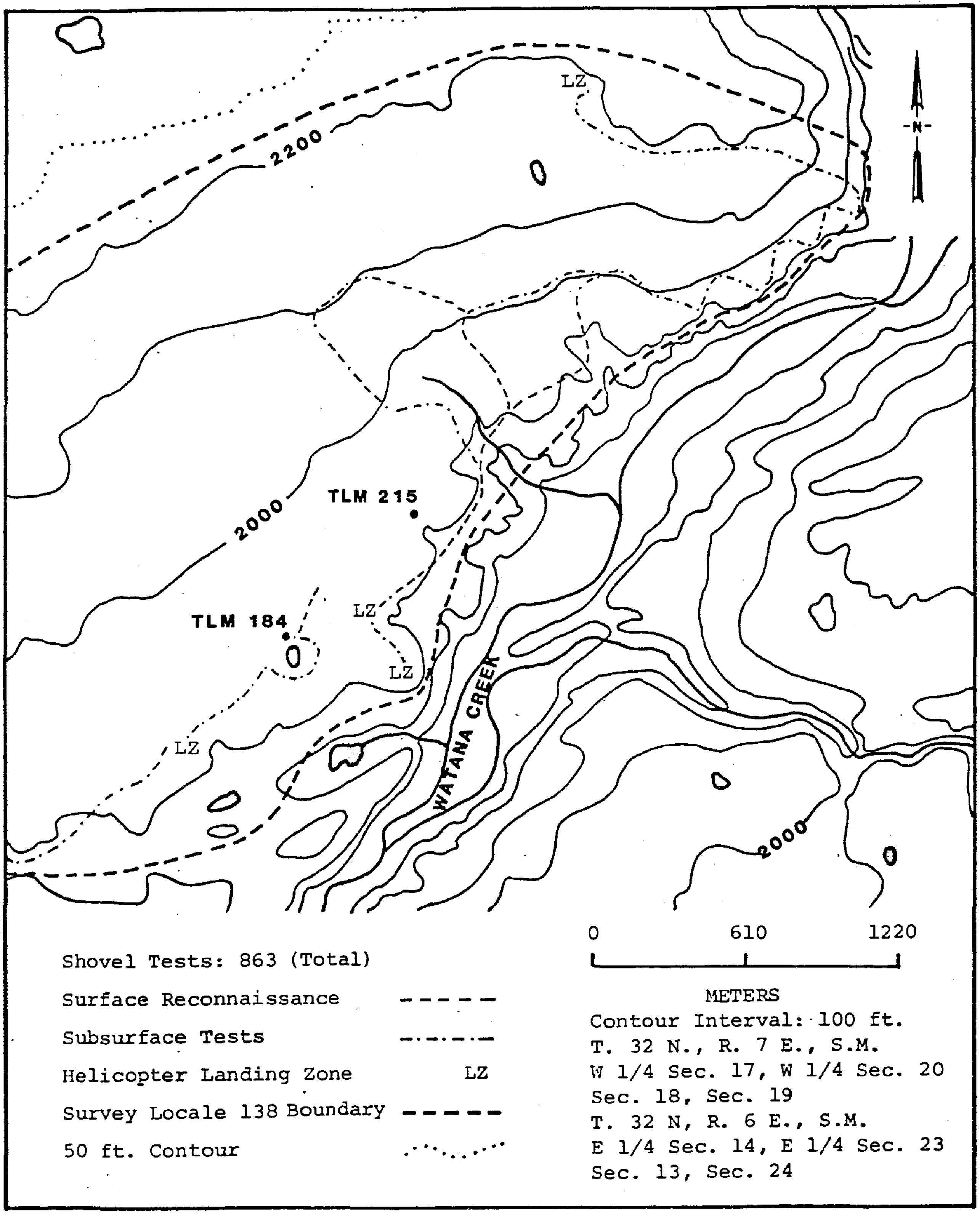


Figure A.91. Surface Reconnaissance and Subsurface Testing in Survey Locale 138.

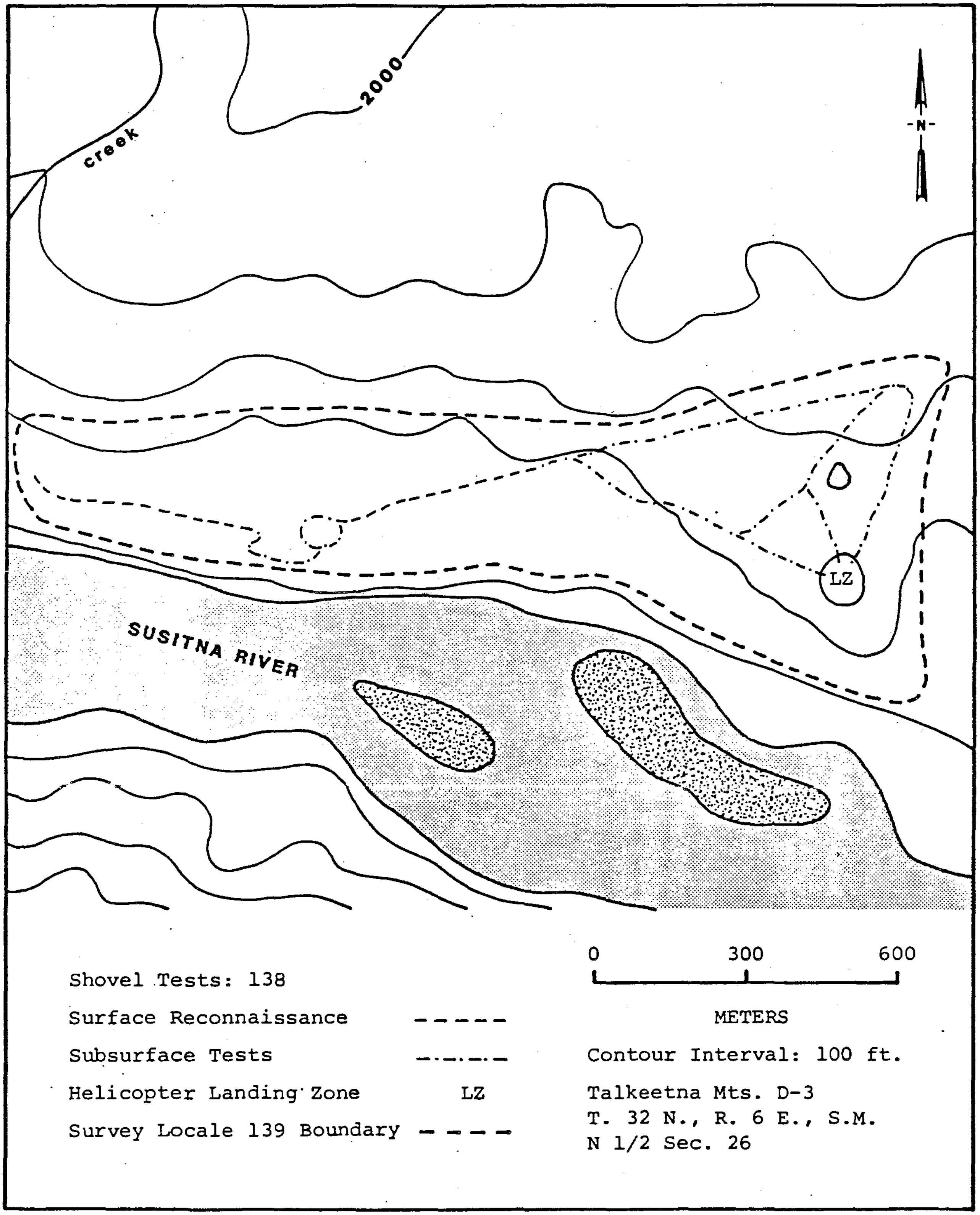


Figure A.92. Surface Reconnaissance and Subsurface Testing in Survey Locale 139.

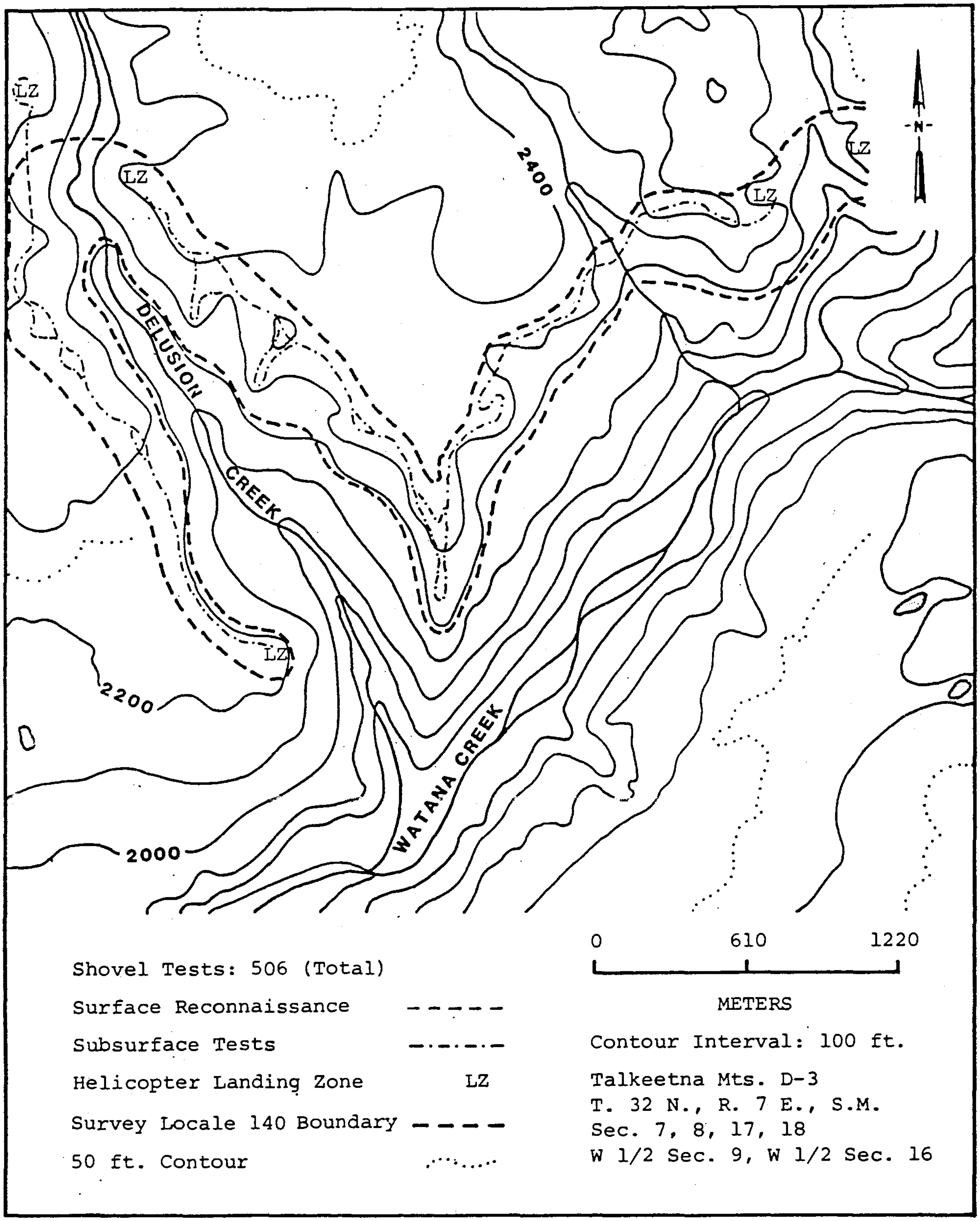
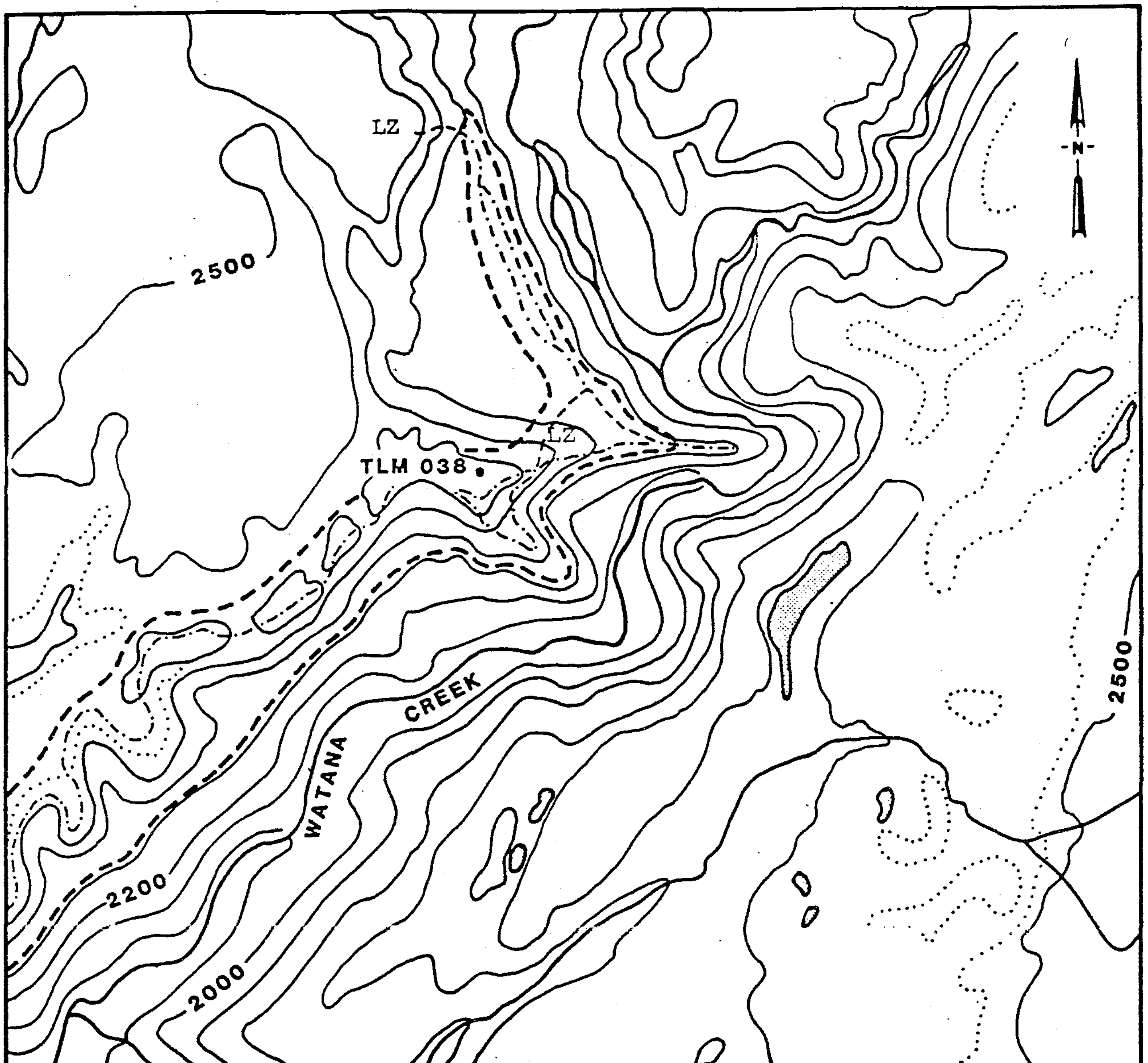


Figure A.93. Surface Reconnaissance and Subsurface Testing in Survey Locale 140.



Shovel Tests: 506 (Total)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 140 Boundary — — — —

50 ft. Contour ....

0 610 1220

METERS

Contour Interval: 100 ft.
Talkeetna Mts. D-3
T. 32 N., R. 7 E., S.M.
W 1/2 Sec. 2, Sec. 3, 4
T. 33 N., R. 7 E., S.M.
E 1/2 Sec. 32, Sec. 33, 34

Figure A.94. Surface Reconnaissance and Subsurface Testing in Survey Locale 140.

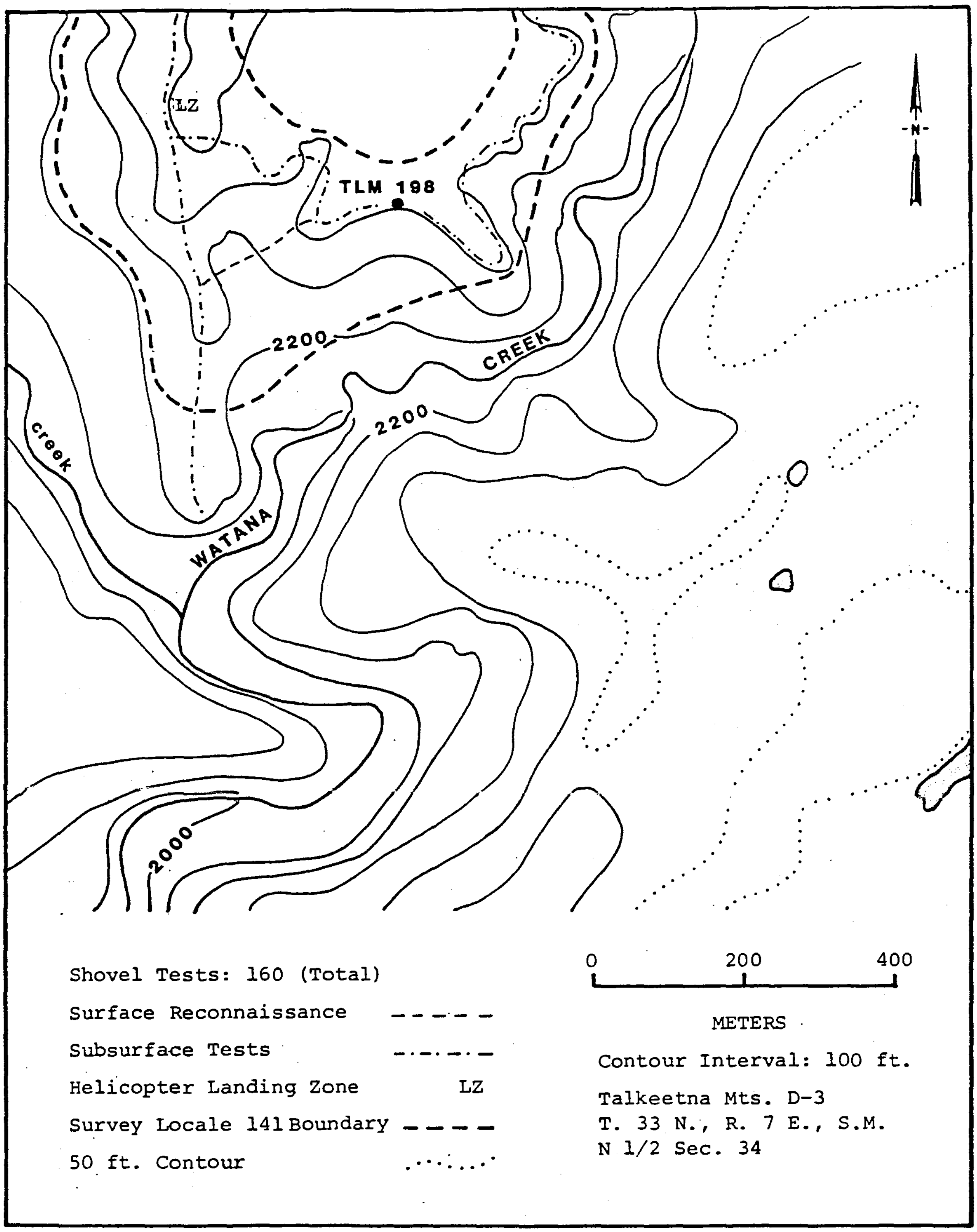


Figure A.95. Surface Reconnaissance and Subsurface Testing in Survey Locale 141.

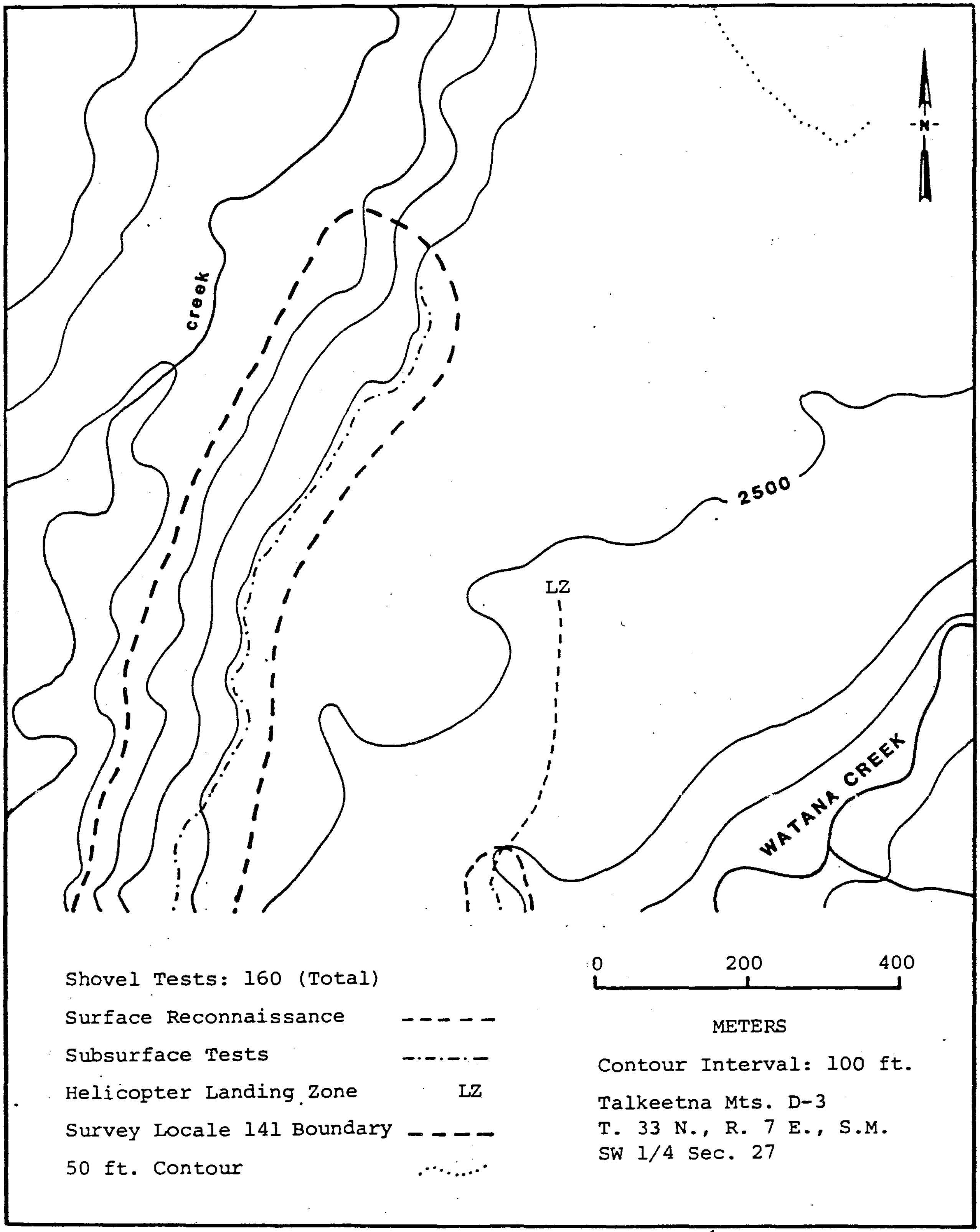


Figure A.96. Surface Reconnaissance and Subsurface Testing in Survey Locale 141.

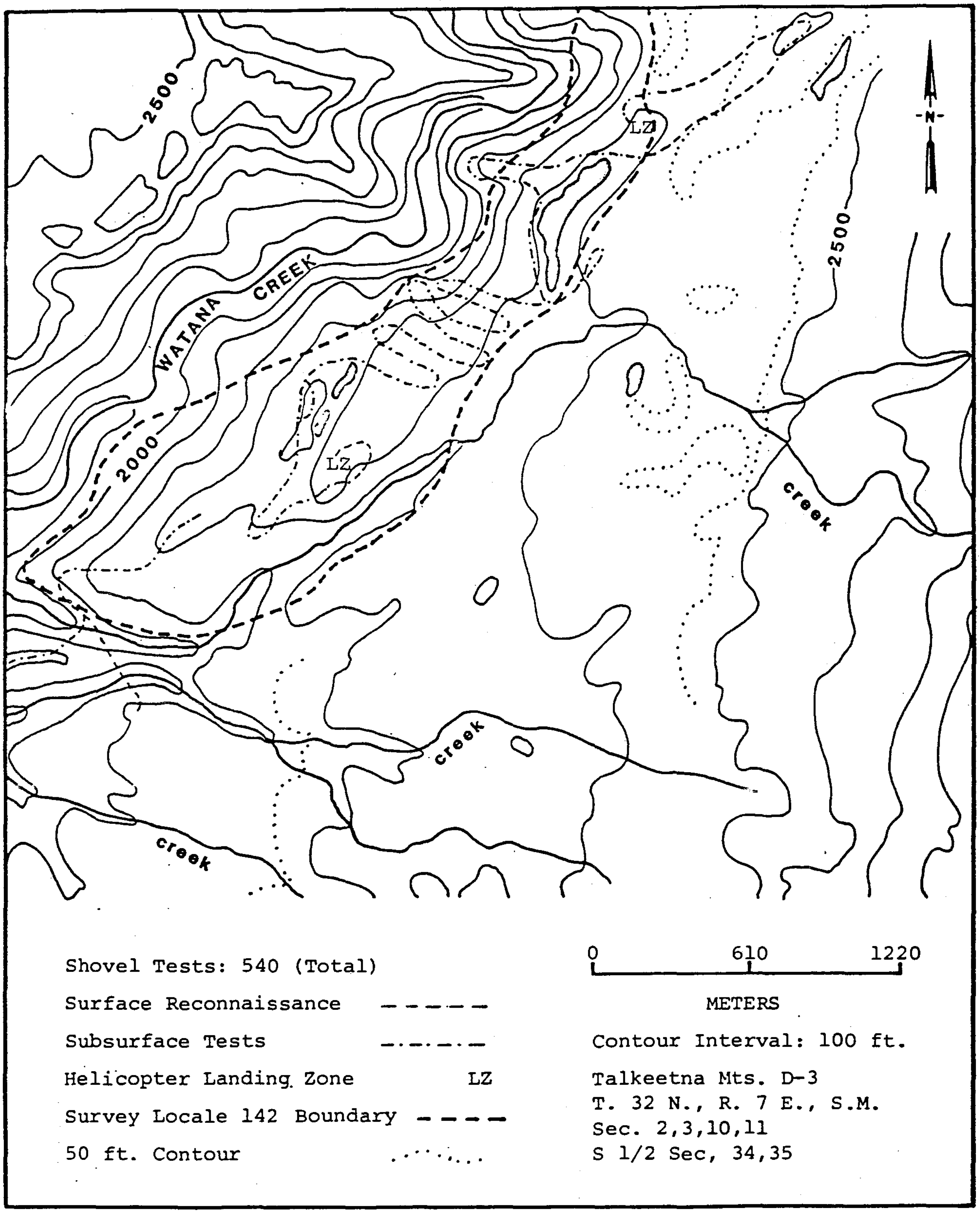
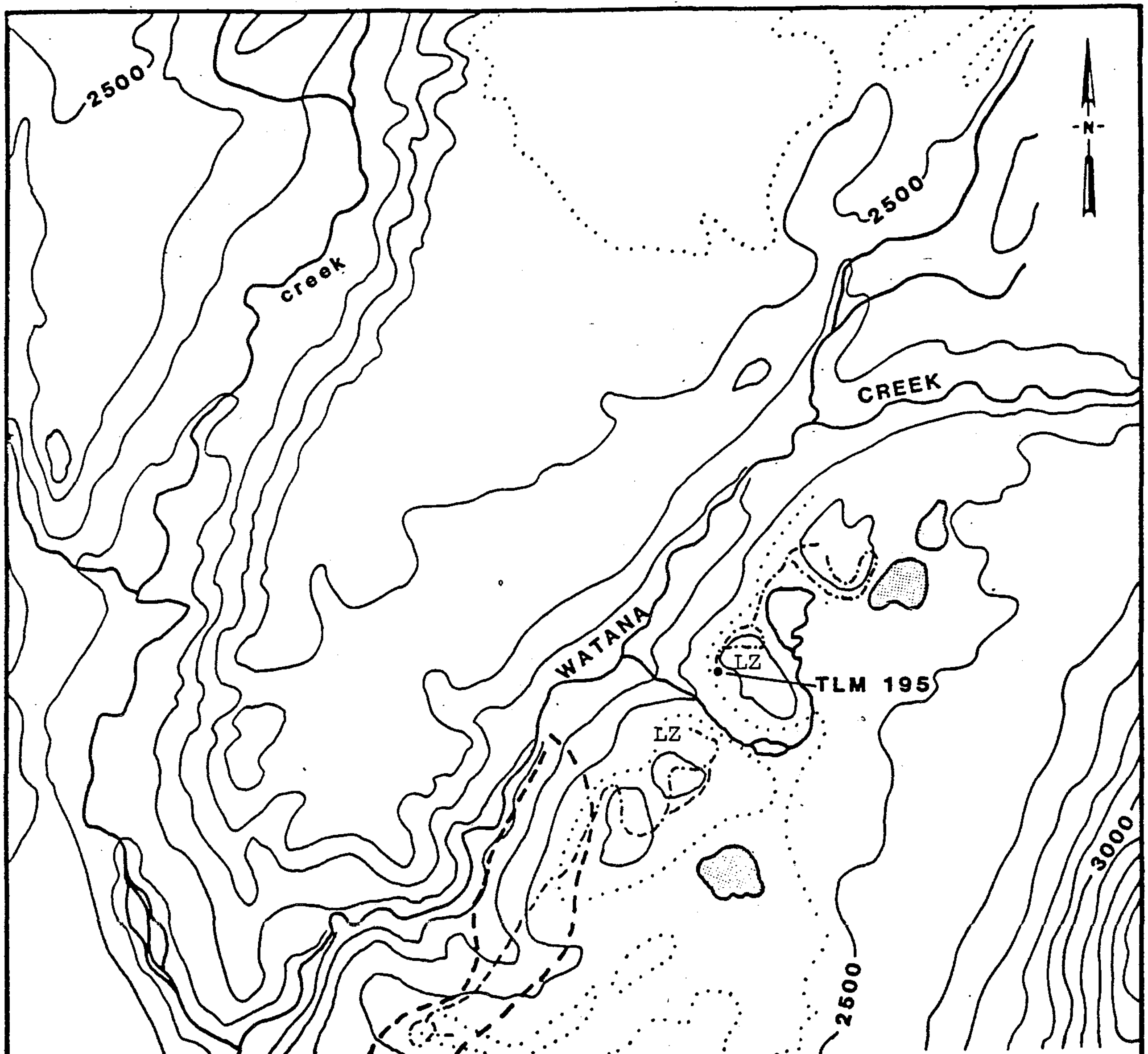


Figure A.97. Surface Reconnaissance and Subsurface Testing in Survey Locale 142.



0 610 1220

METERS

Shovel Tests: 540 (Total)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 142 Boundary — — — —

50 ft. Contour ....

Contour Interval: 100 ft.

Talkeetna Mts D-3
T. 32 N., R. 7 E., S.M.
Sec. 27,28,34,35

Figure A.98. Surface Reconnaissance and Subsurface Testing in Survey Locale 142.

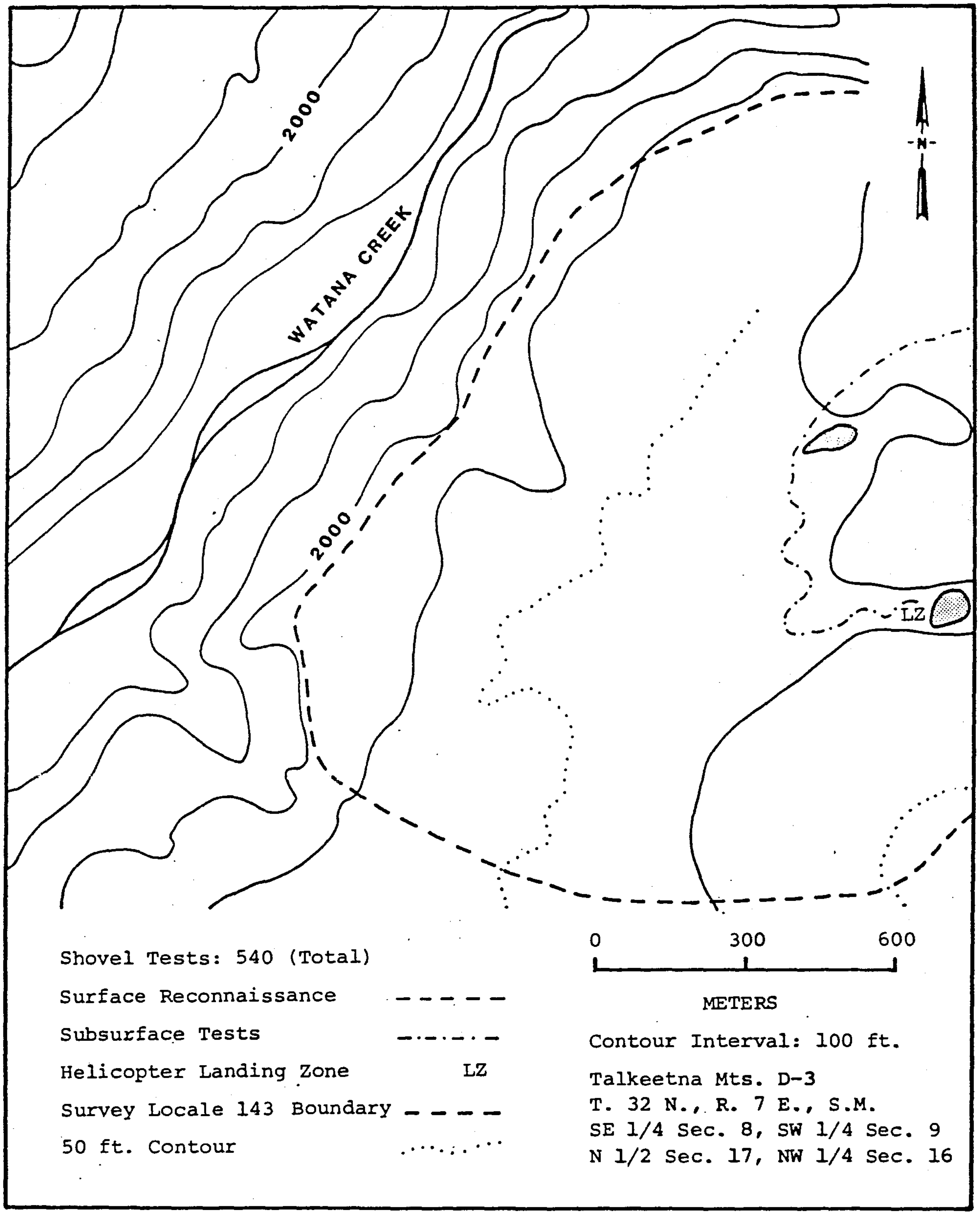


Figure A.99. Surface Reconnaissance and Subsurface Testing in Survey Locale 143.

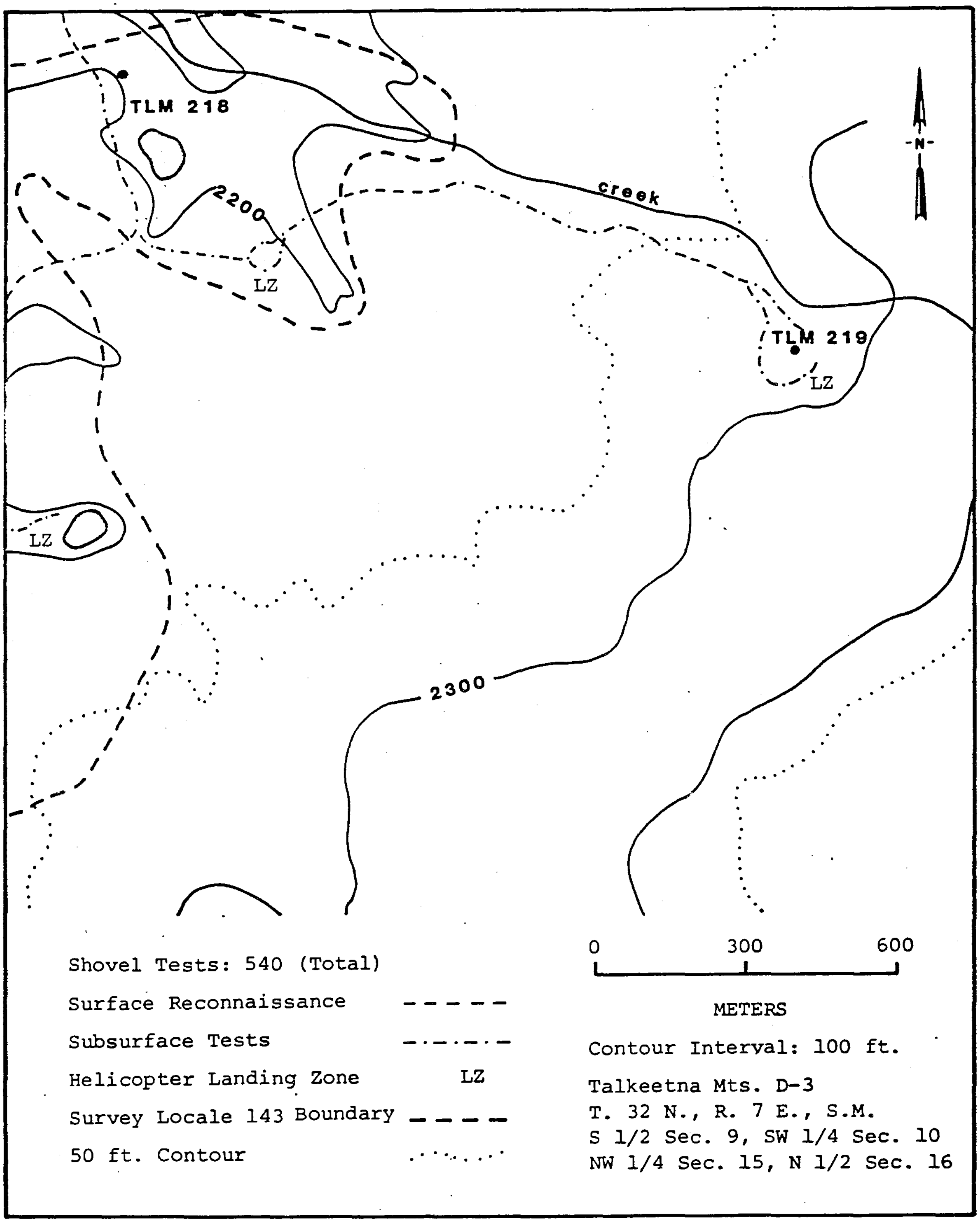
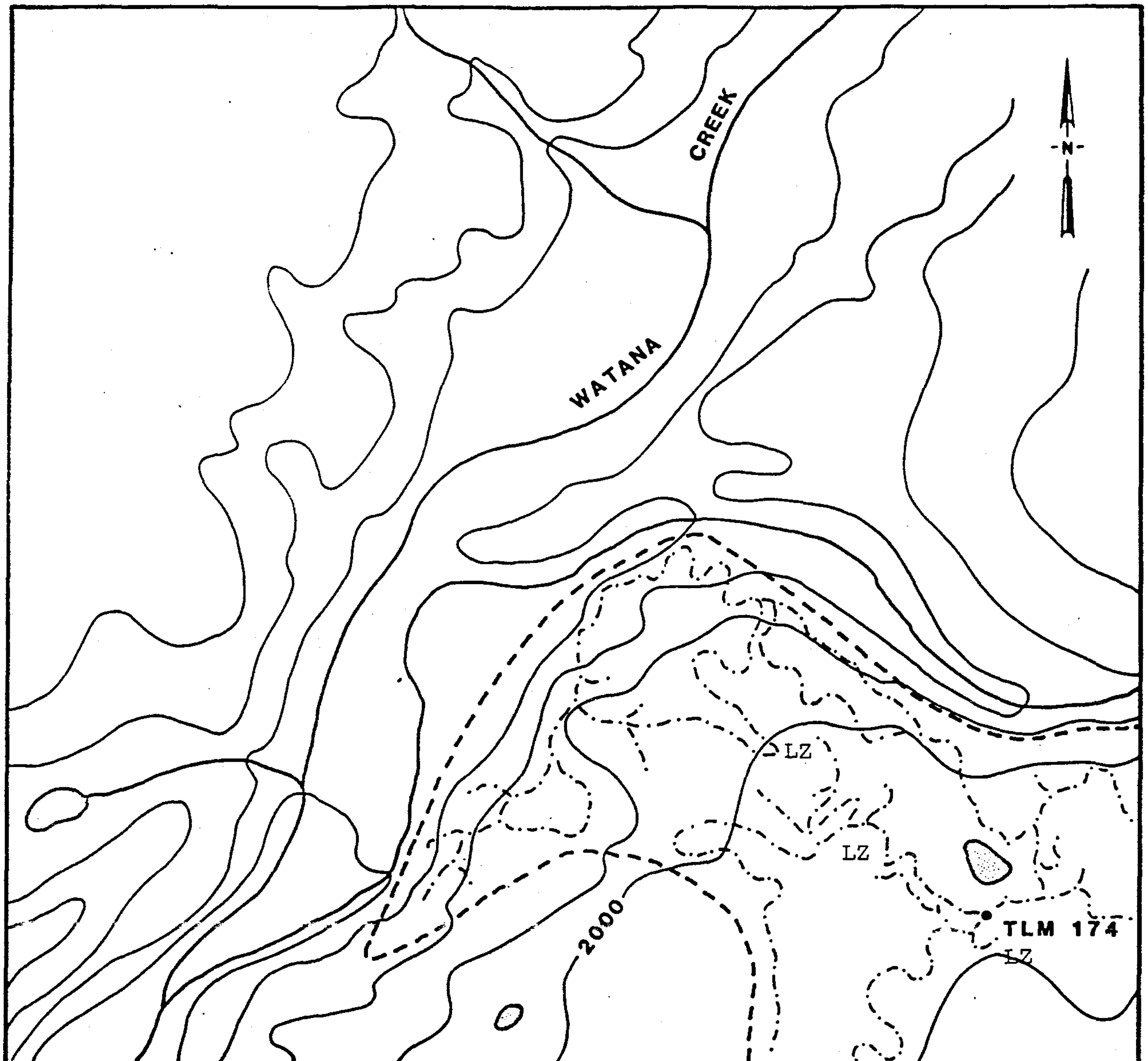


Figure A.100. Surface Reconnaissance and Subsurface Testing in Survey Locale 143.



Shovel Tests: 500 (Total)

Surface Reconnaissance

Subsurface Tests

Helicopter Landing Zone LZ

Survey Locale 144 A Boundary

0 300 600

METERS

Contour Interval: 100 ft.

Talkeetna Mts. D-3
T. 32 N., R. 7 E., S.M.
W 1/2 Sec. 30

Figure A.101. Surface Reconnaissance and Subsurface Testing in Survey Locale 144A.

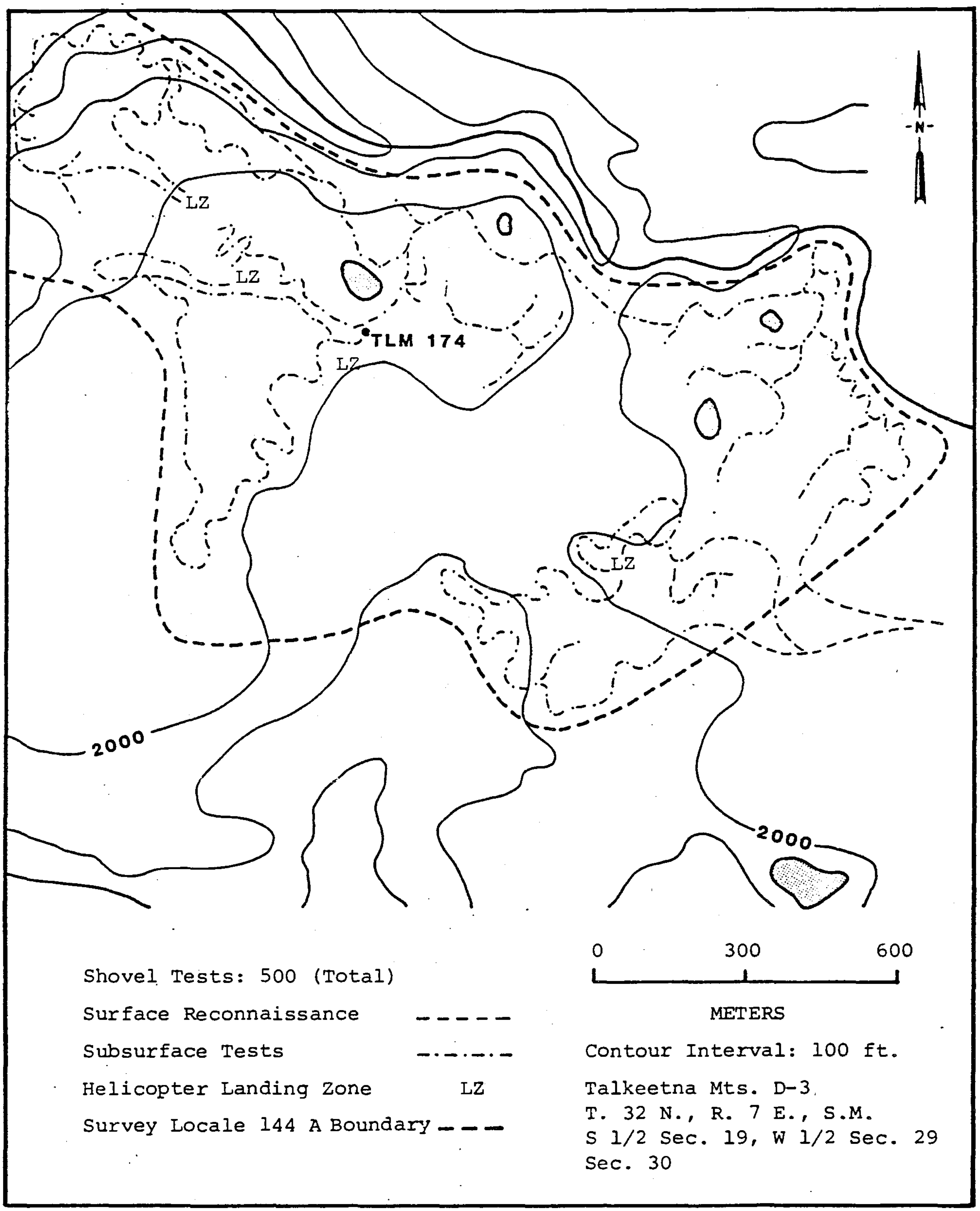


Figure A.102. Surface Reconnaissance and Subsurface Testing in Survey Locale 144A.

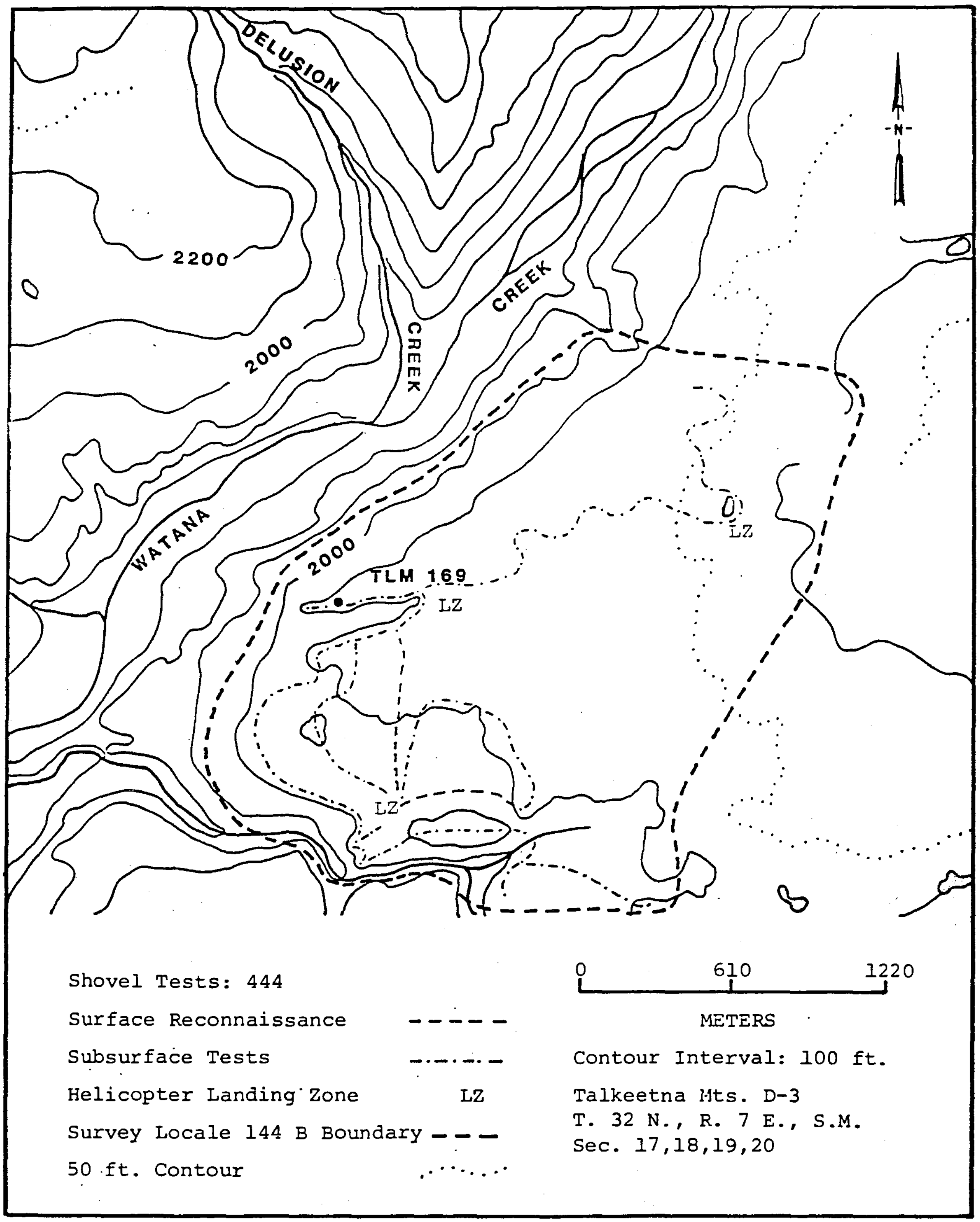


Figure A.103. Surface Reconnaissance and Subsurface Testing in Survey Locale 144B.

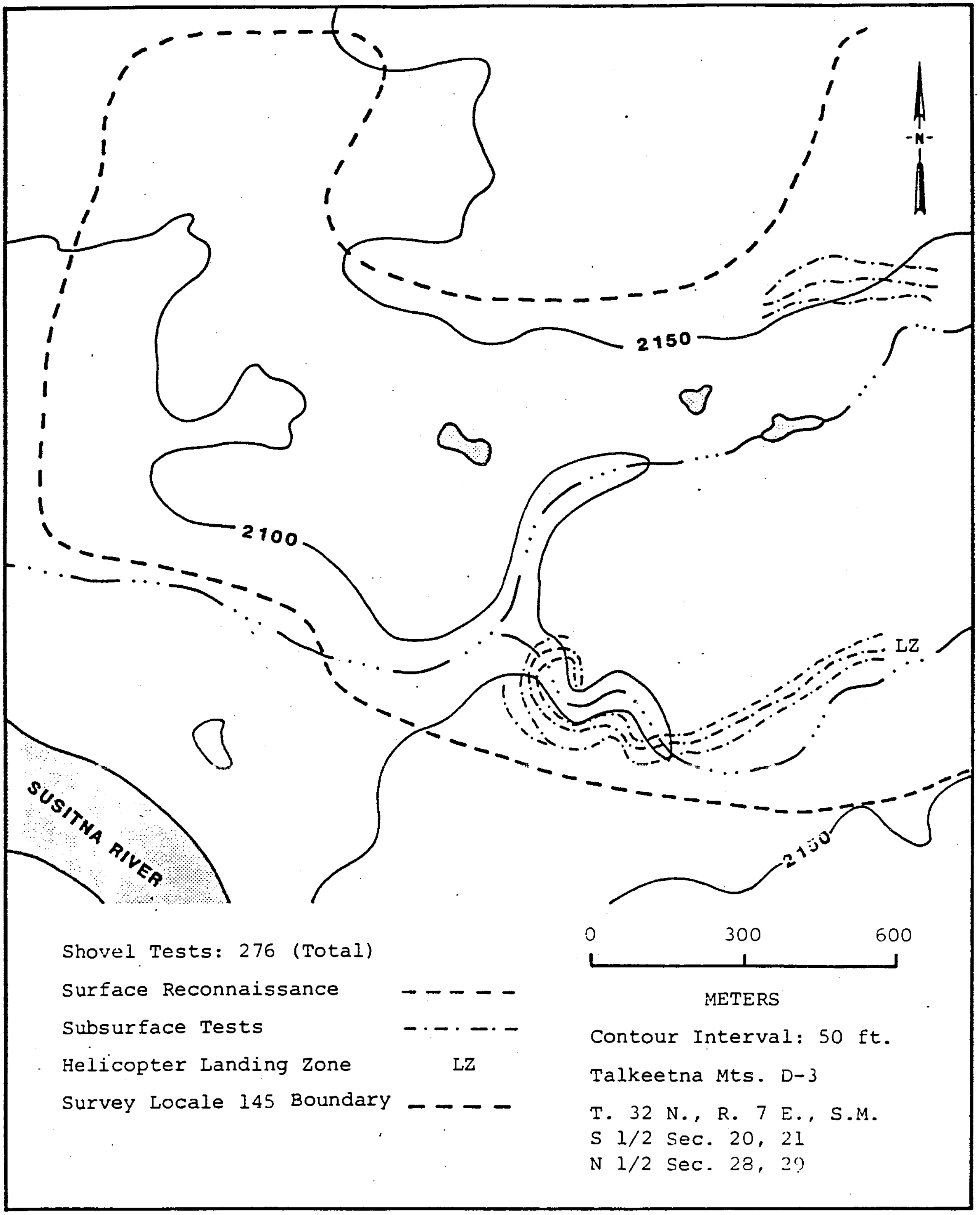


Figure A.104. Surface Reconnaissance and Subsurface Testing in Survey Locale 145.

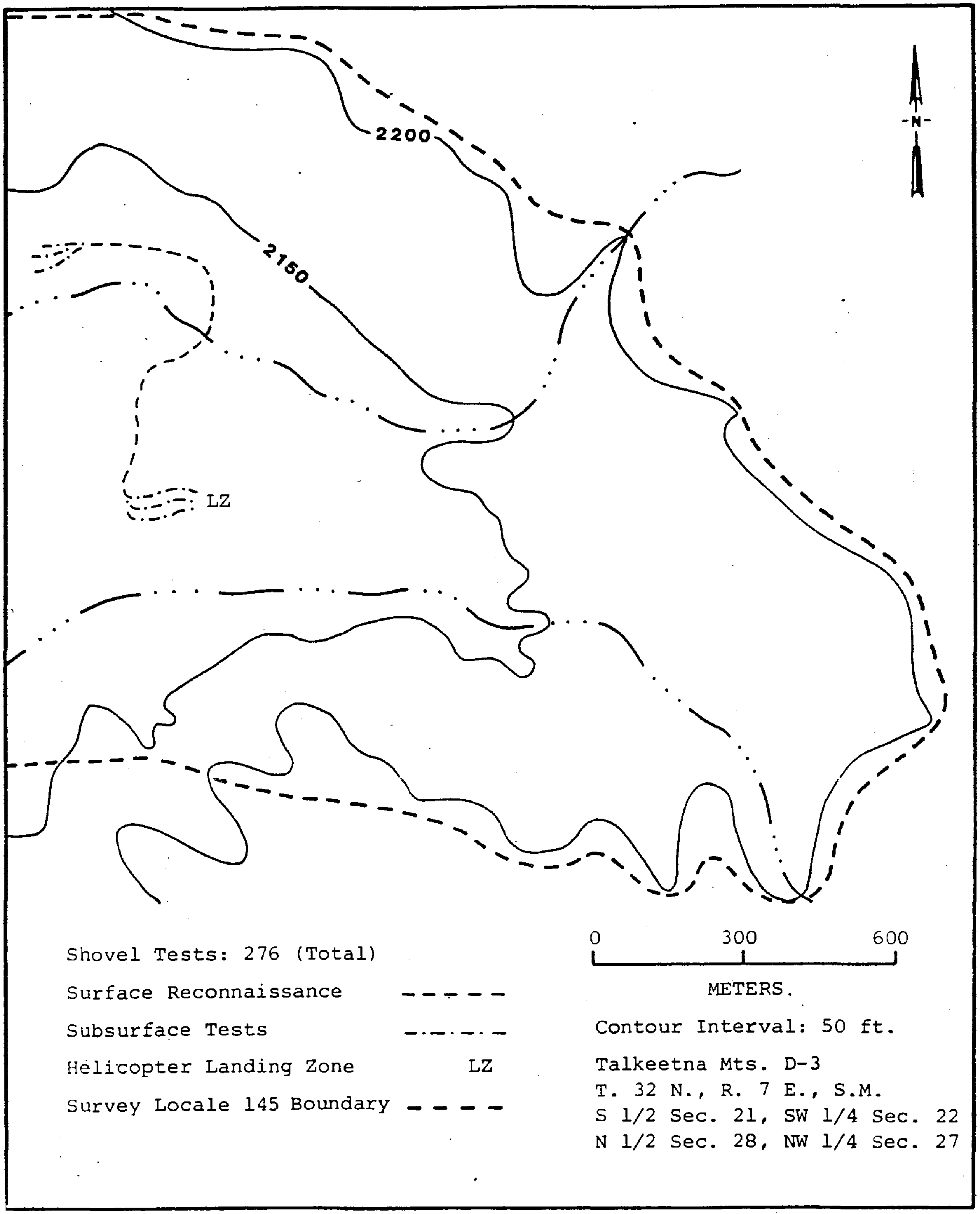


Figure A.105. Surface Reconnaissance and Subsurface Testing in Survey Locale 145.

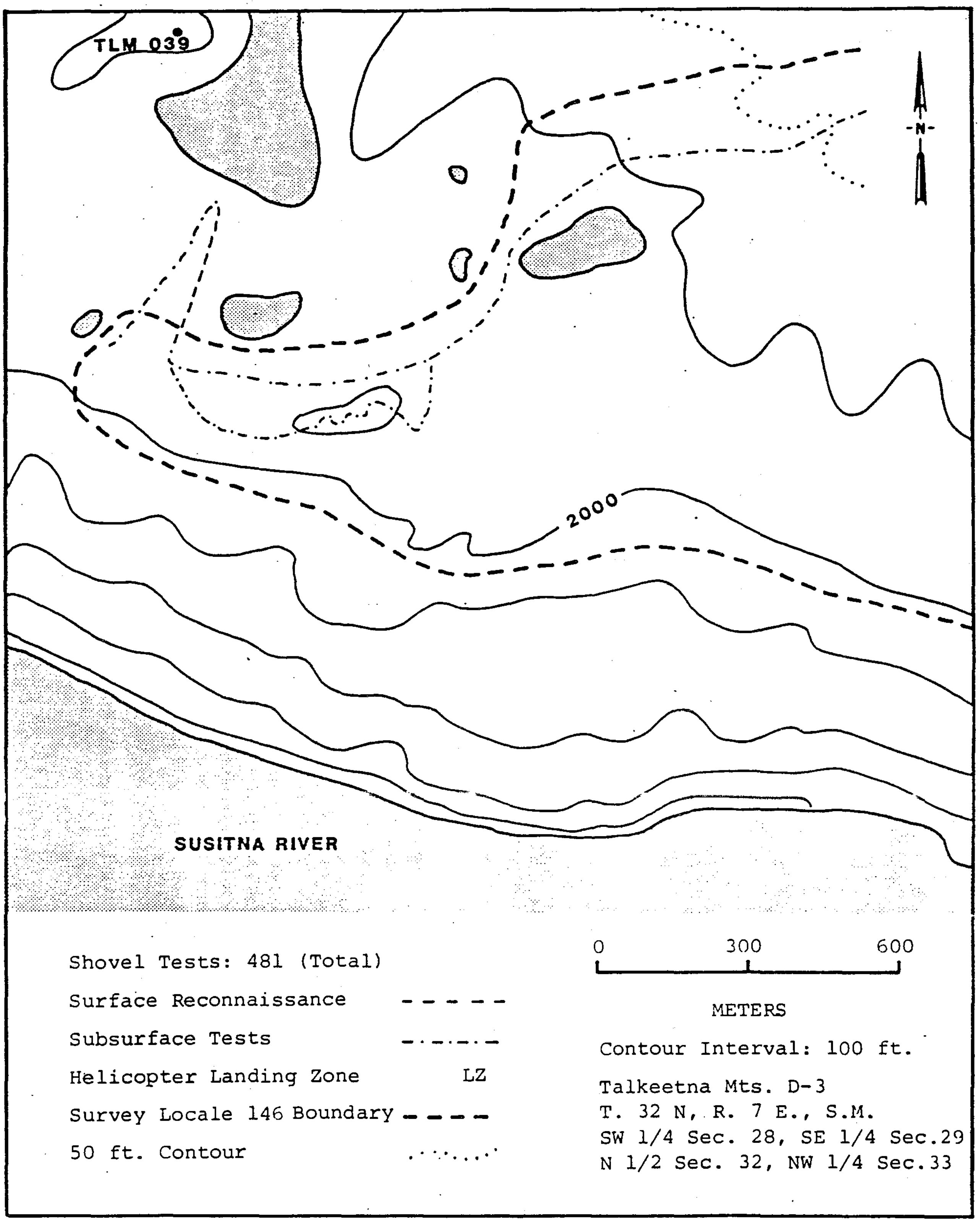
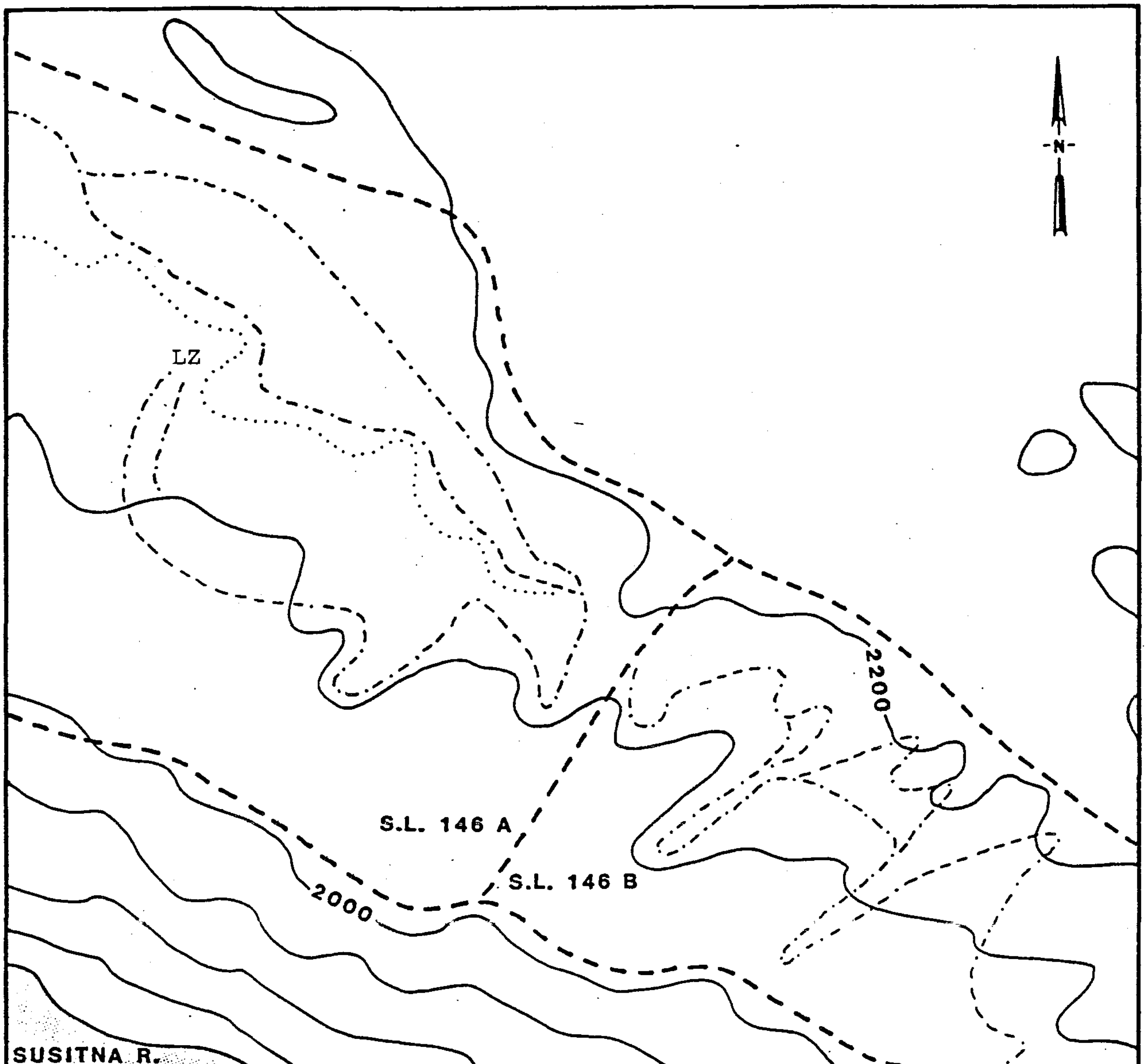


Figure A.106. Surface Reconnaissance and Subsurface Testing in Survey Locale 146.



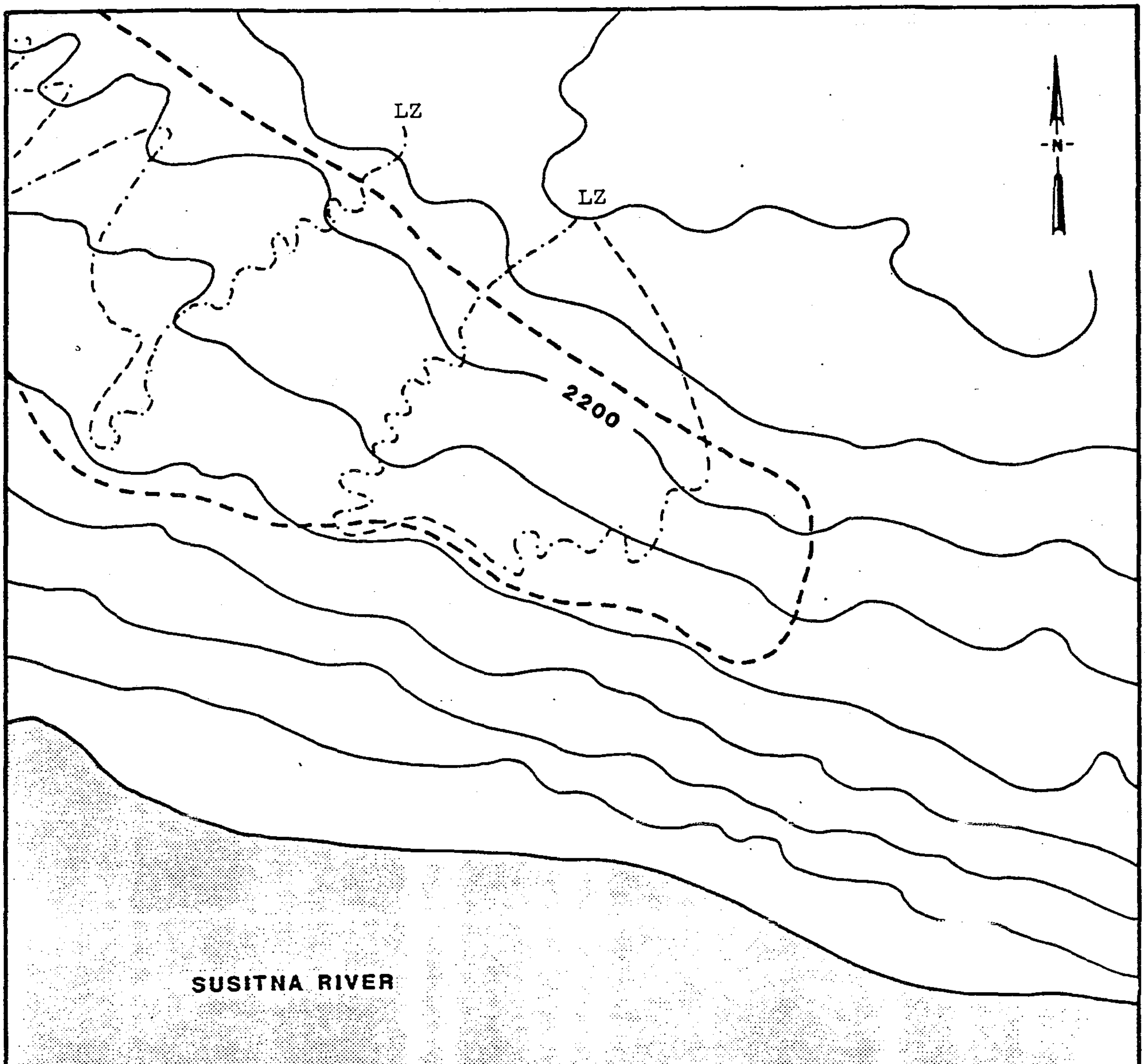
Shovel Tests: 481 (Total)
Surface Reconnaissance
Subsurface Tests
Helicopter Landing Zone LZ
Survey Locale 146 Boundary
50 ft. Contour

0 300 600
METERS

Contour Interval: 100 ft.

Talkeenta Mts. D-3
T. 32 N., R. 7 E., S.M.
S 1/2 Sec. 27, SE 1/2 Sec. 28
E 1/2 Sec. 33, Sec. 34

Figure A.107. Surface Reconnaissance and Subsurface Testing in Survey Locale 146.



Shovel Tests: 481 (Total)

Surface Reconnaissance	- - - - -
Subsurface Tests	-·-·-·-
Helicopter Landing Zone	LZ
Survey Locale 146 Boundary	— — — —
50 ft. Contour	·······

0 300 600

METERS

Contour Interval: 100 ft.
Talkeetna Mts. D-3
T. 32 N., R. 7 E., S.M.
SE 1/4 Sec. 34, SW 1/4 Sec.35
T. 31 N., R. 7 E., S.M.
NE 1/4 Sec. 3, NW 1/4 Sec. 2

Figure A.108. Surface Reconnaissance and Subsurface Testing in Survey Locale 146.

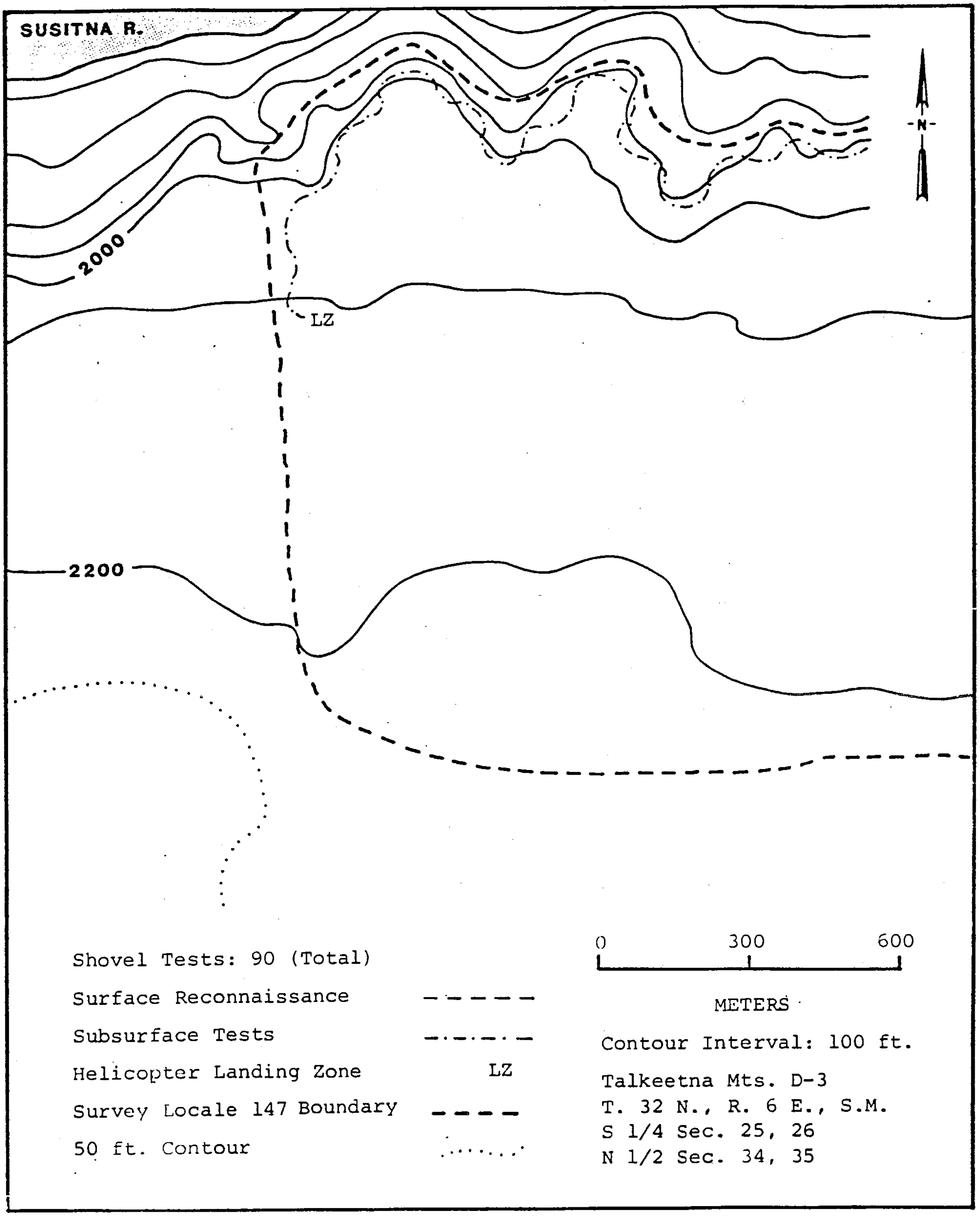


Figure A.109. Surface Reconnaissance and Subsurface Testing in Survey Locale 147.

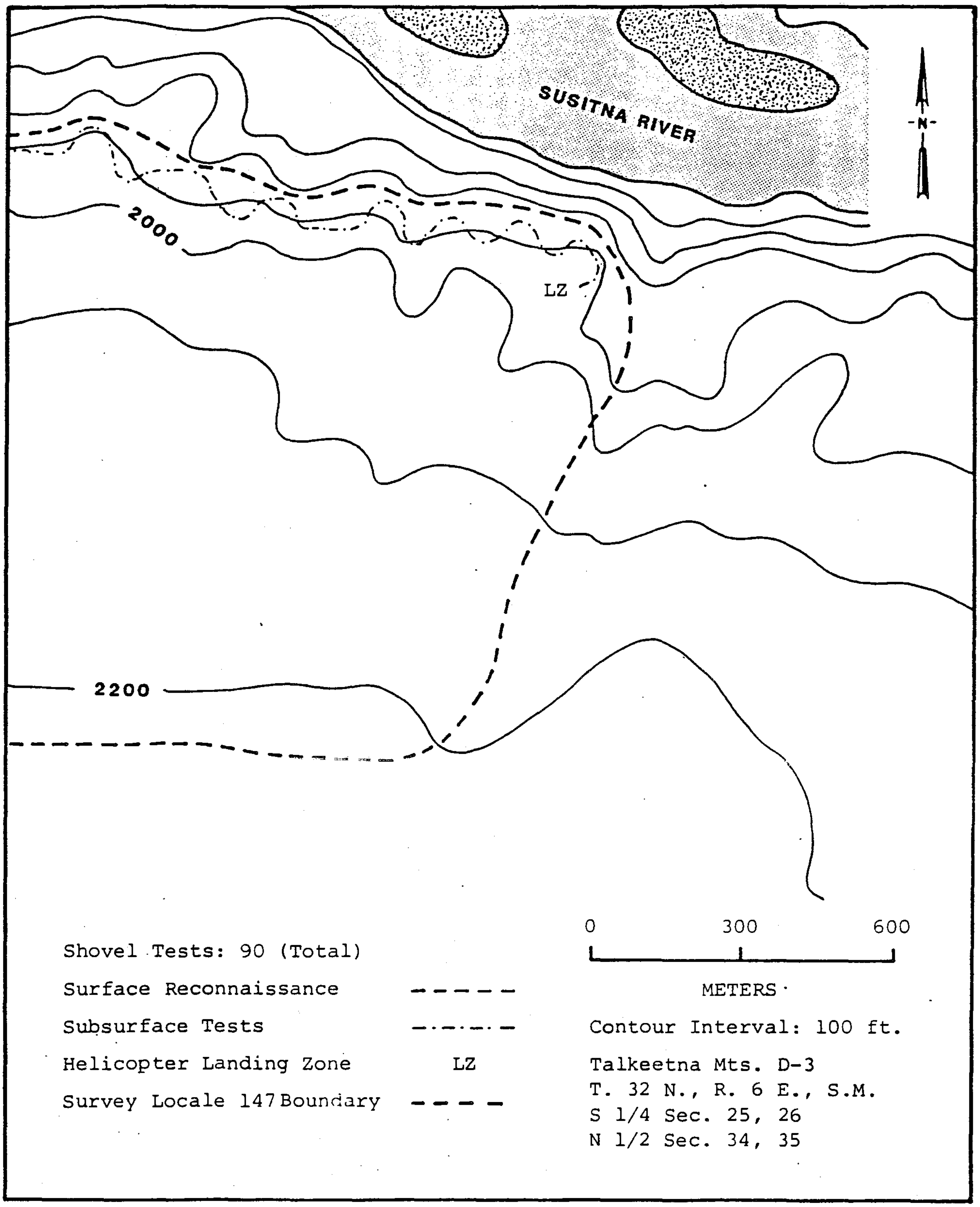


Figure A.110. Surface Reconnaissance and Subsurface Testing in Survey Locale 147.

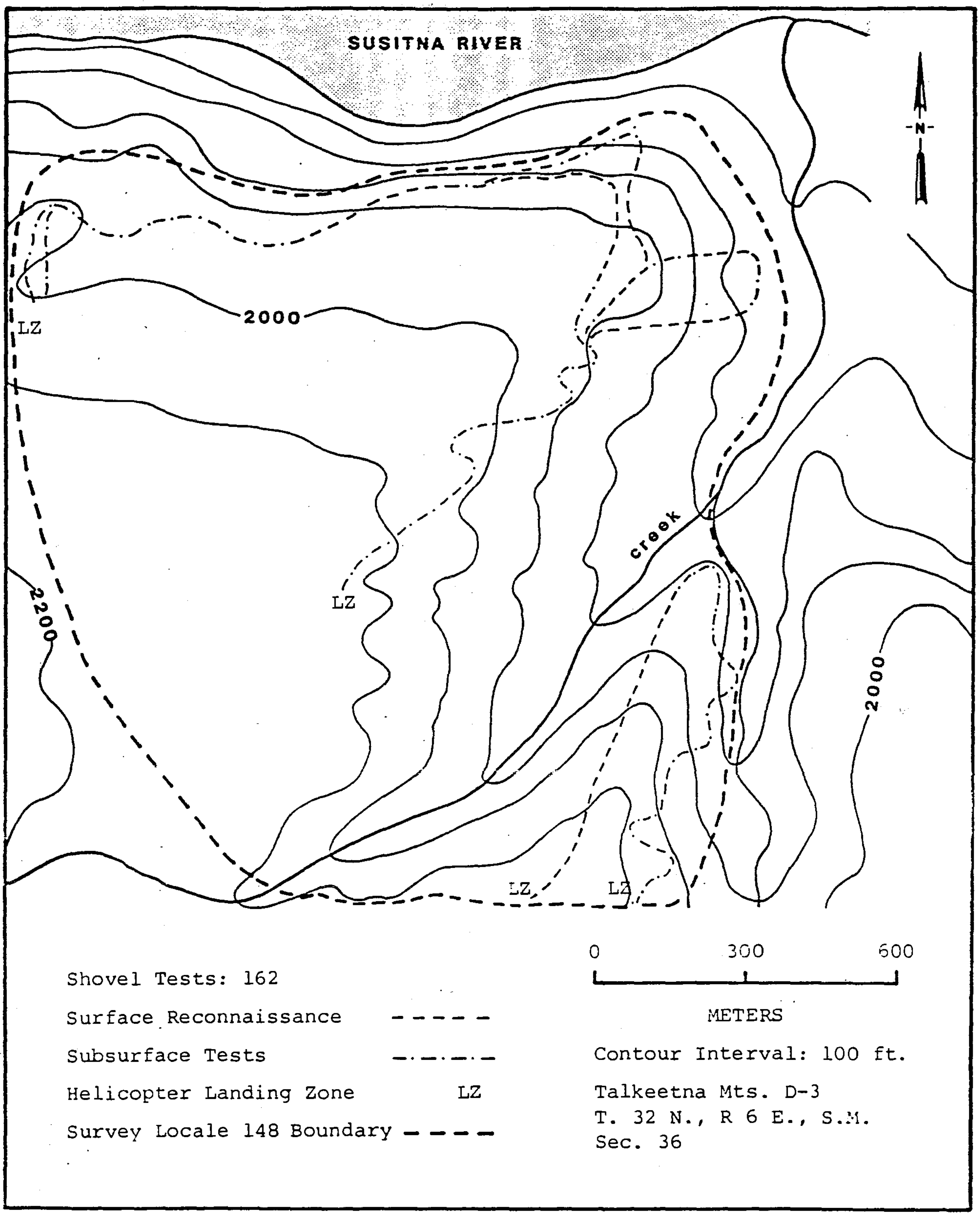


Figure A.111. Surface Reconnaissance and Subsurface Testing in Survey Locale 148.

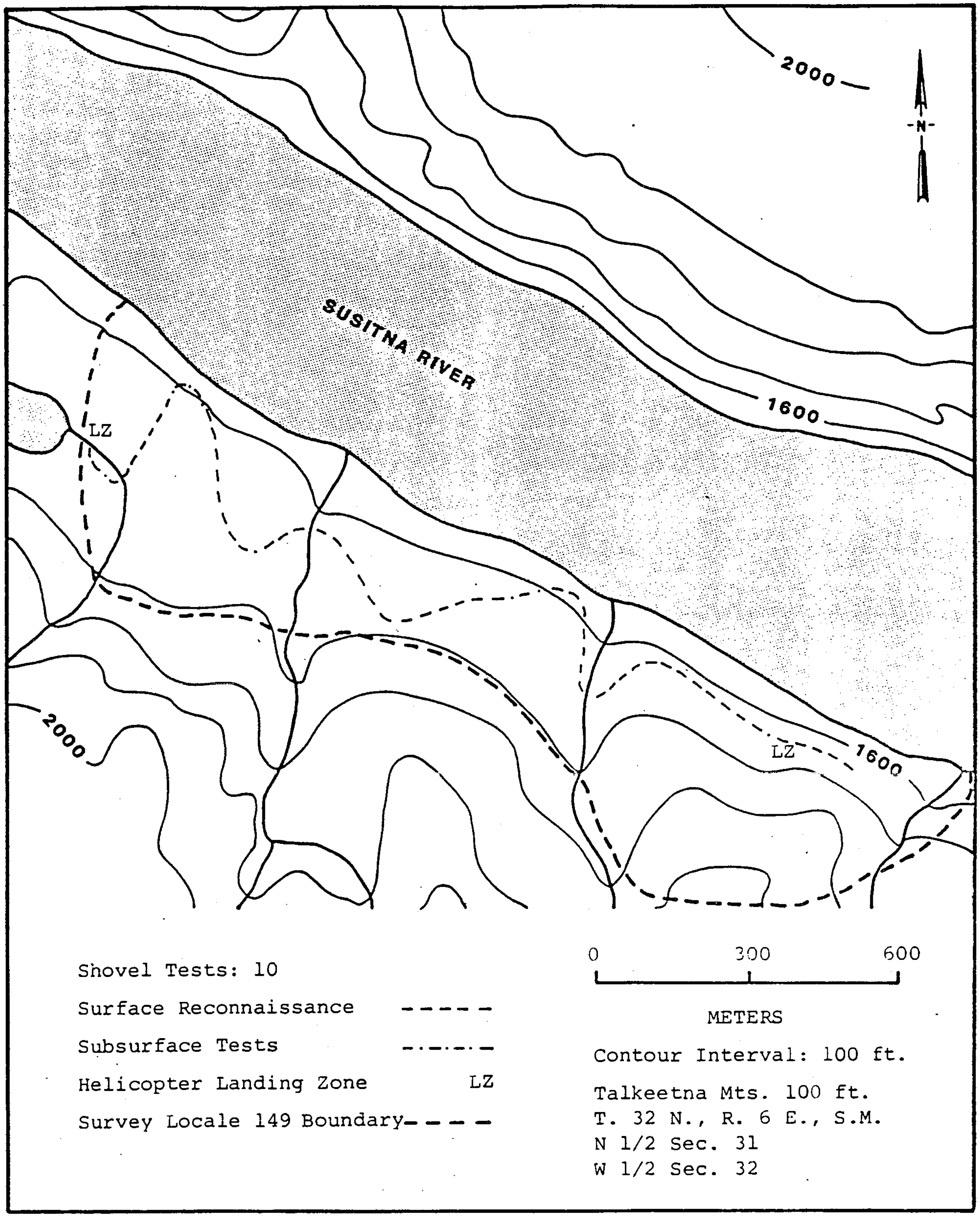


Figure A.112. Surface Reconnaissance and Subsurface Testing in Survey Locale 149.

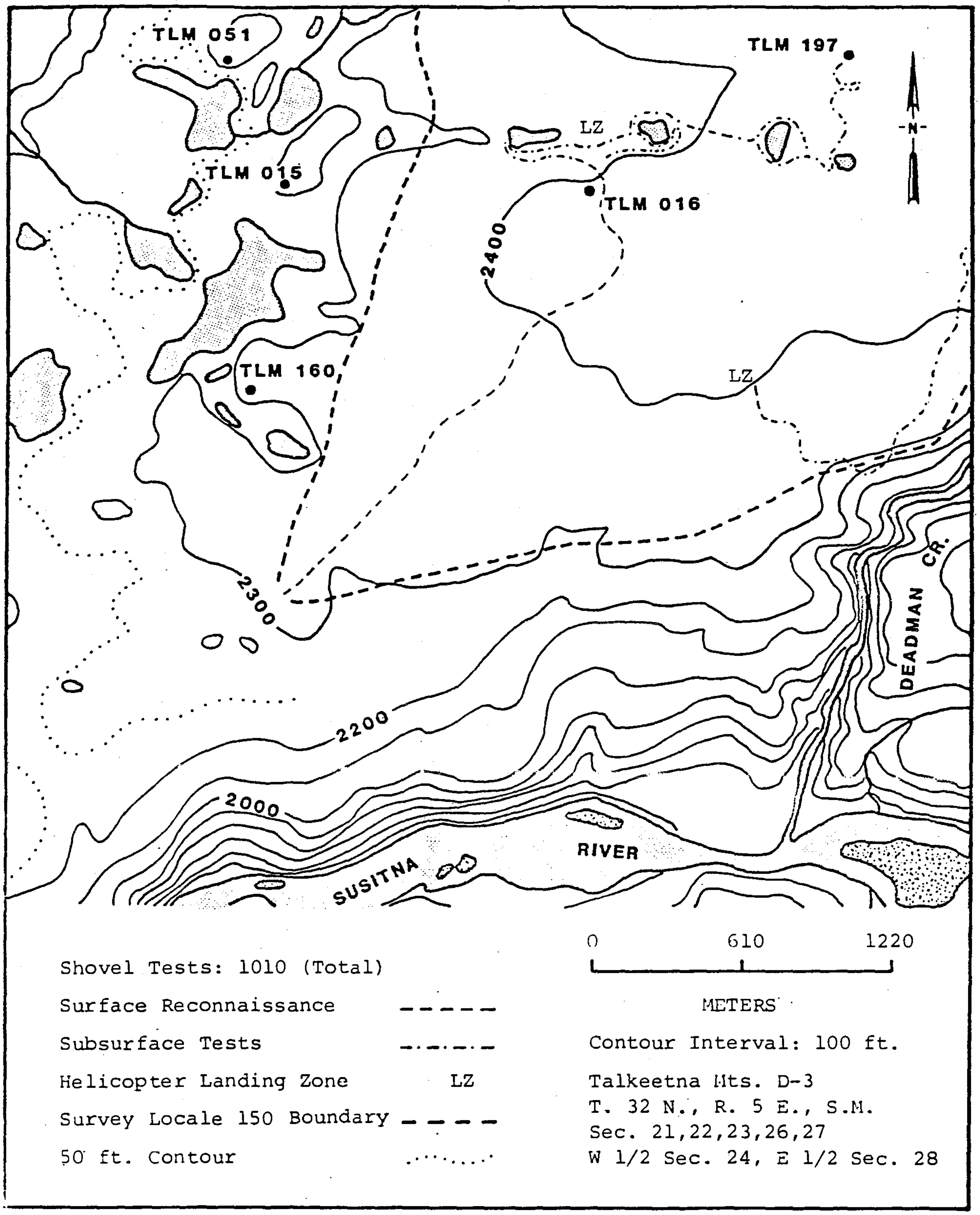


Figure A.113. Surface Reconnaissance and Subsurface Testing in Survey Locale 150.

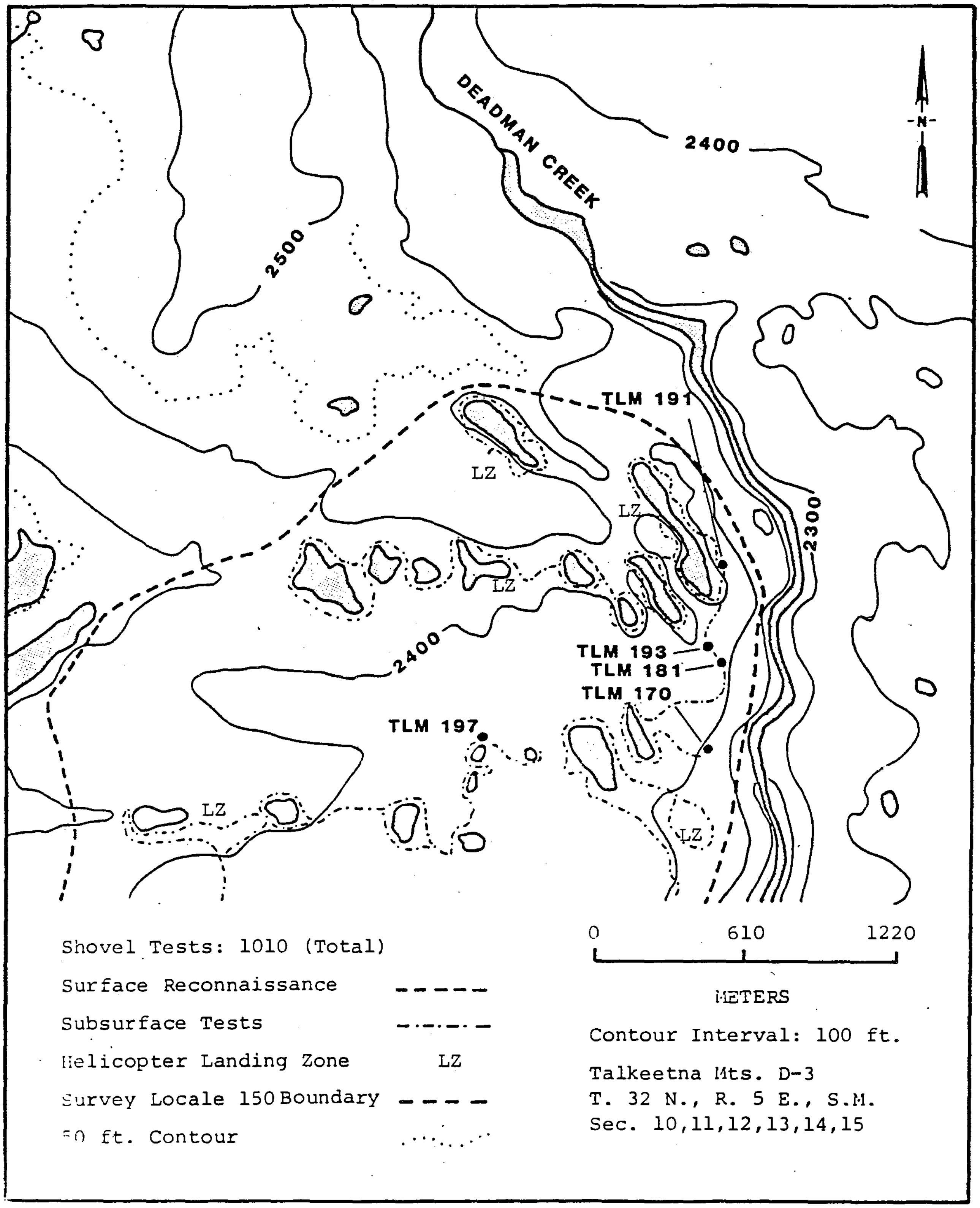


Figure A.114. Surface Reconnaissance and Subsurface Testing in Survey Locale 150.

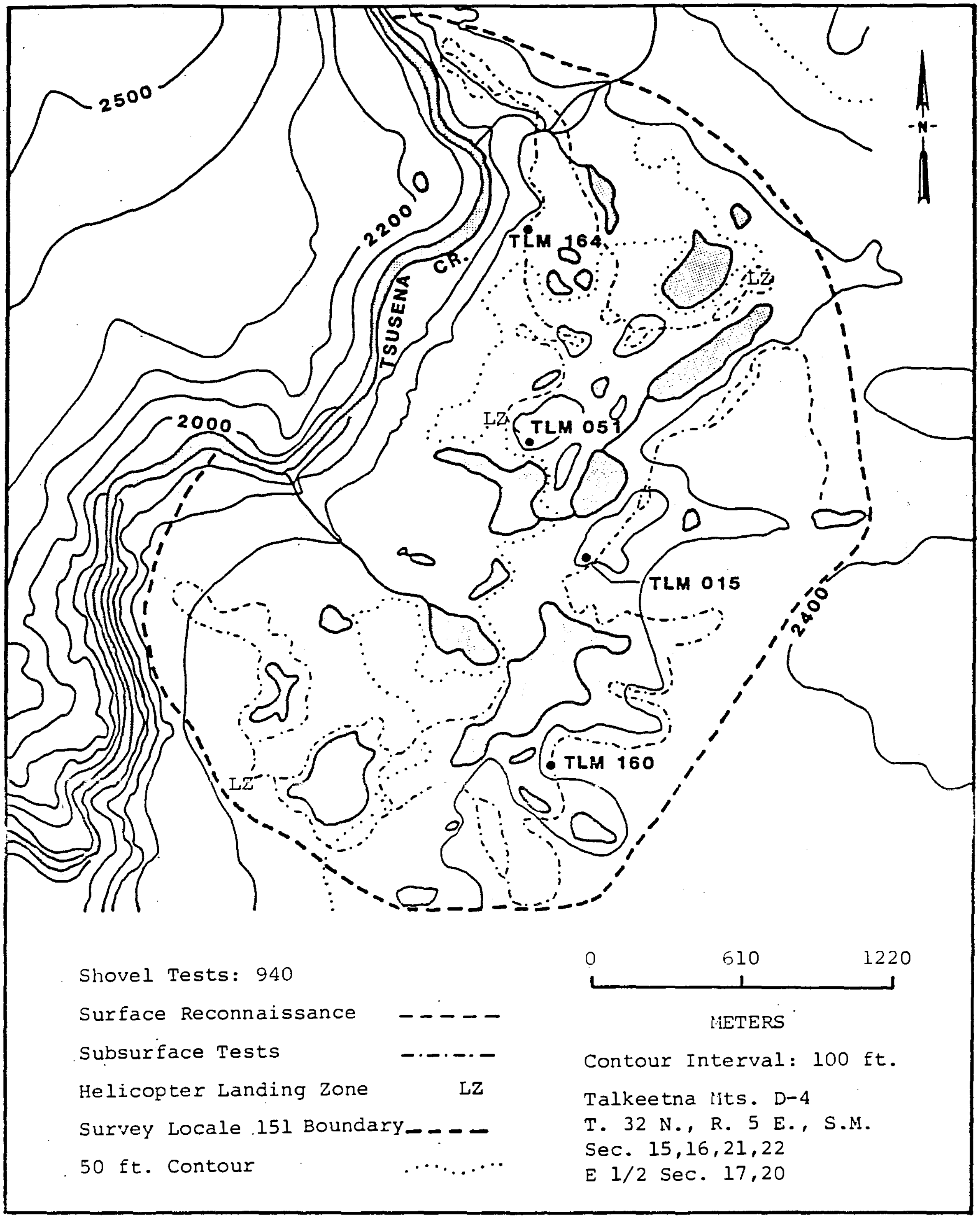


Figure A.115. Surface Reconnaissance and Subsurface Testing in Survey Locale 151.

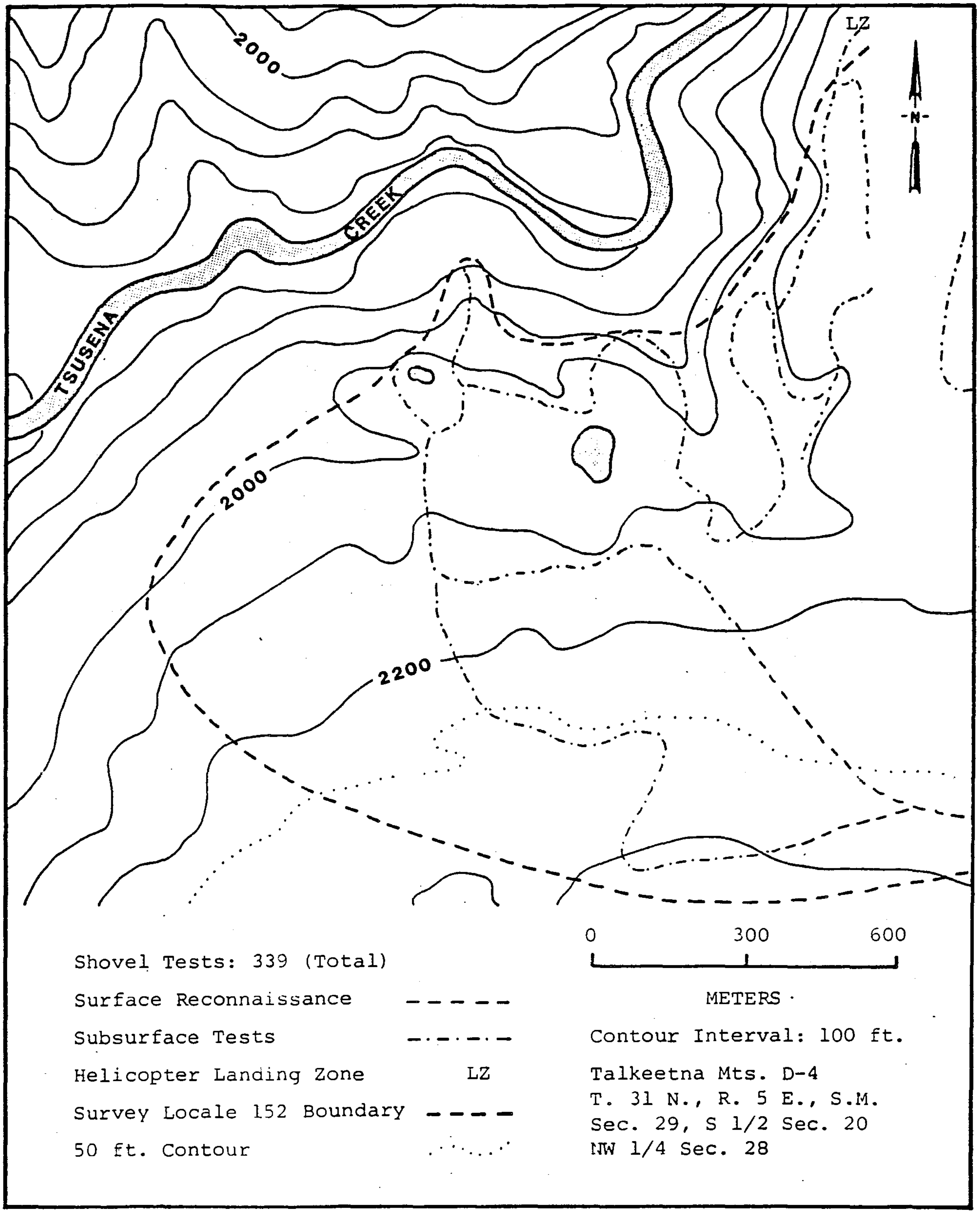


Figure A.116. Surface Reconnaissance and Subsurface Testing in Survey Locale 152.

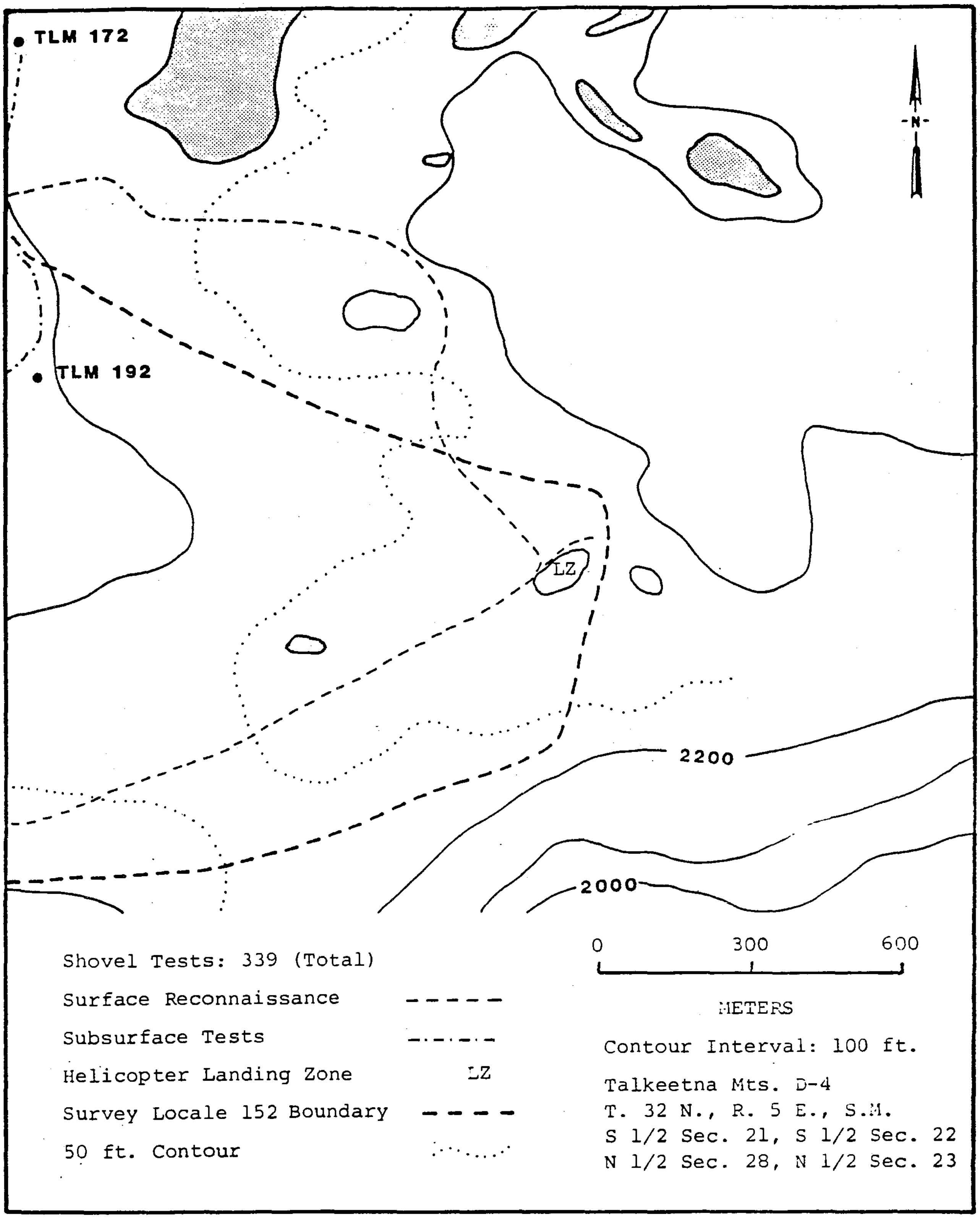
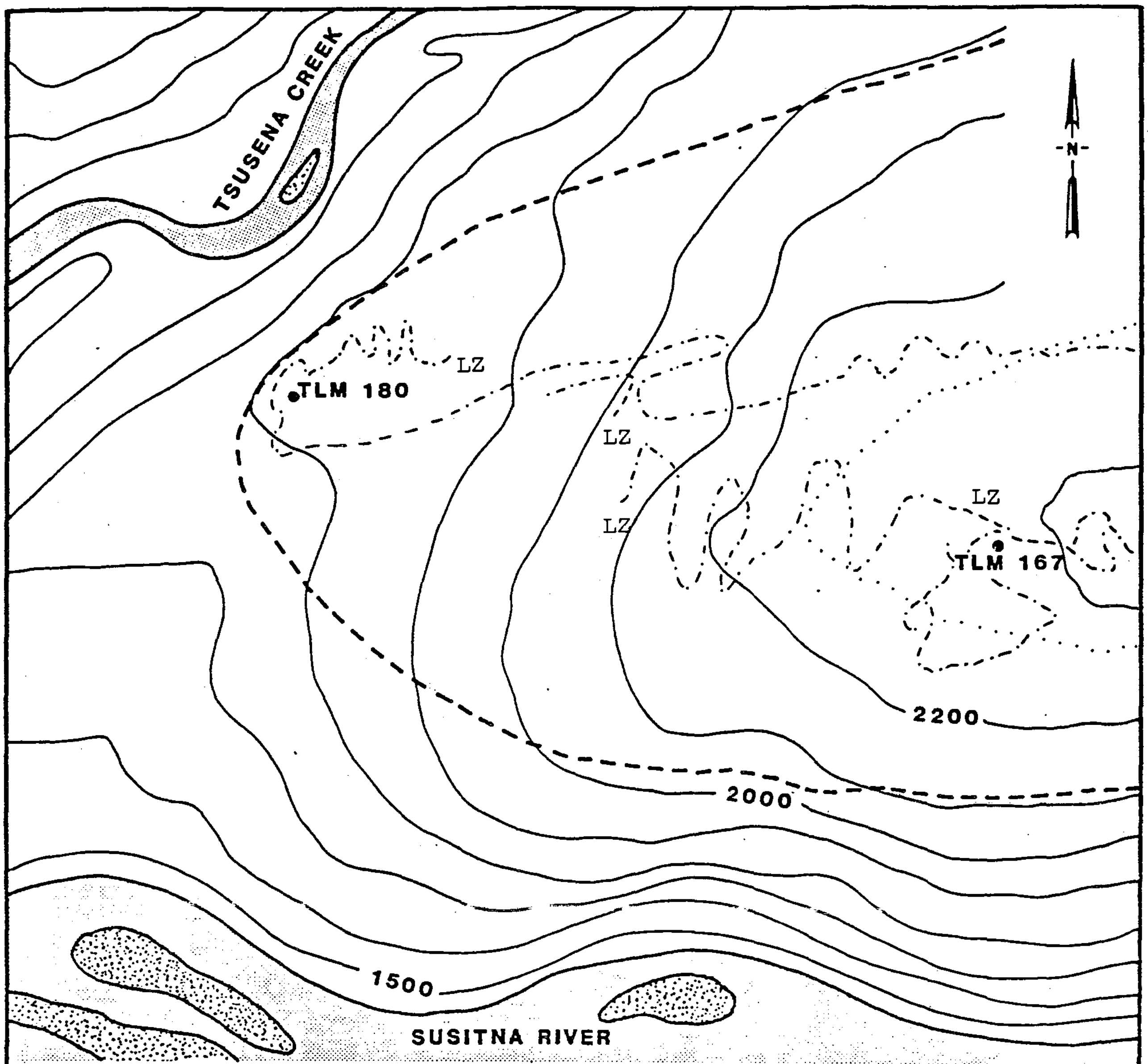


Figure A.117. Surface Reconnaissance and Subsurface Testing in Survey Locale 152.



0 300 600

METERS

Shovel Tests: 914 (Total)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Survey Locale 153 Boundary — — — —

50 ft. Contour ·········

Contour Interval: 100 ft.

Talkeetna Mts. D-4
T. 32 N., R. 5 E., S.M.
W 1/2 Sec. 30, E 1/2 Sec. 29
NE 1/4 Sec. 31, N 1/2 Sec. 32

Figure A.118. Surface Reconnaissance and Subsurface Testing in Survey Locale 153.

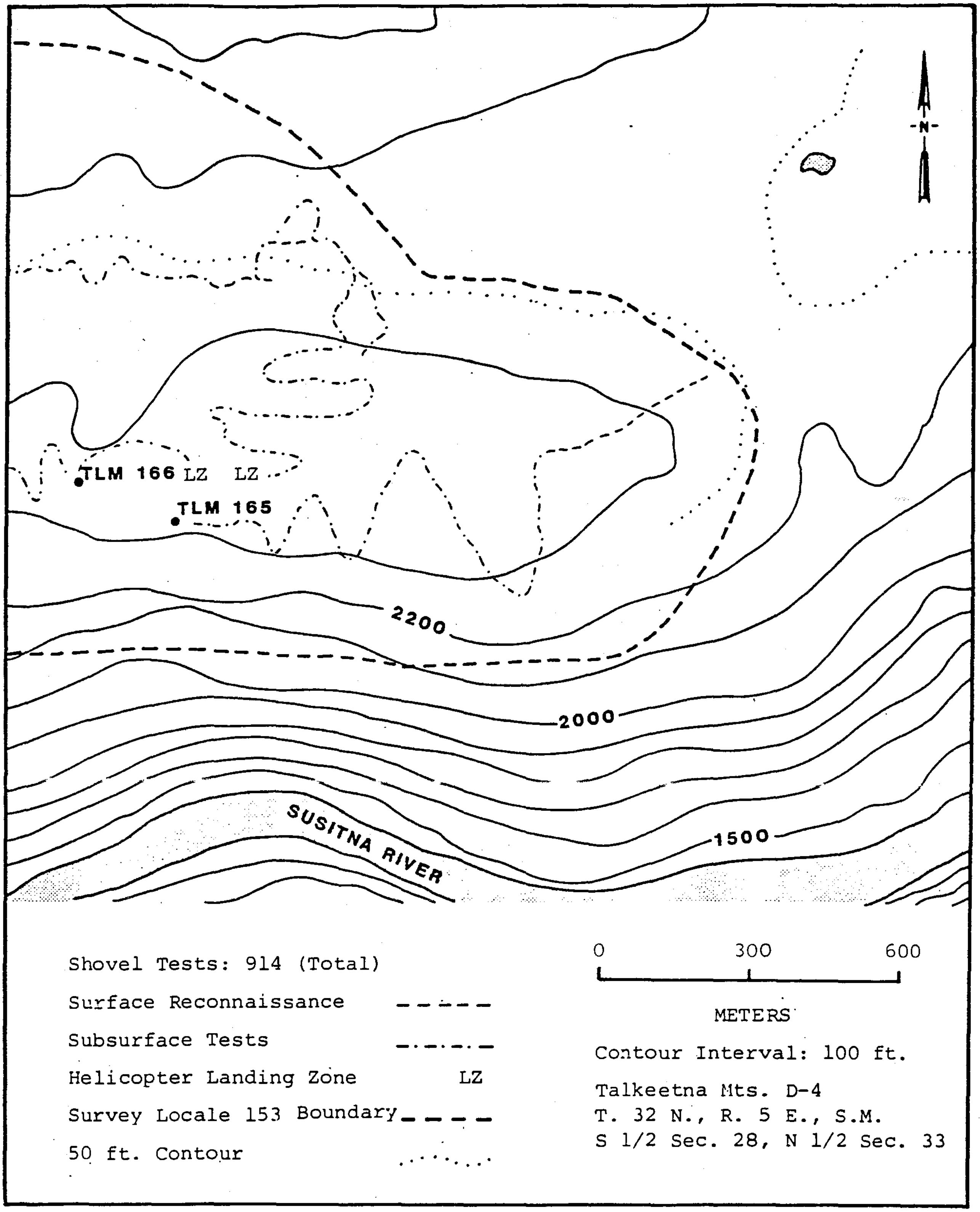


Figure A.119. Surface Reconnaissance and Subsurface Testing in Survey Locale 153.

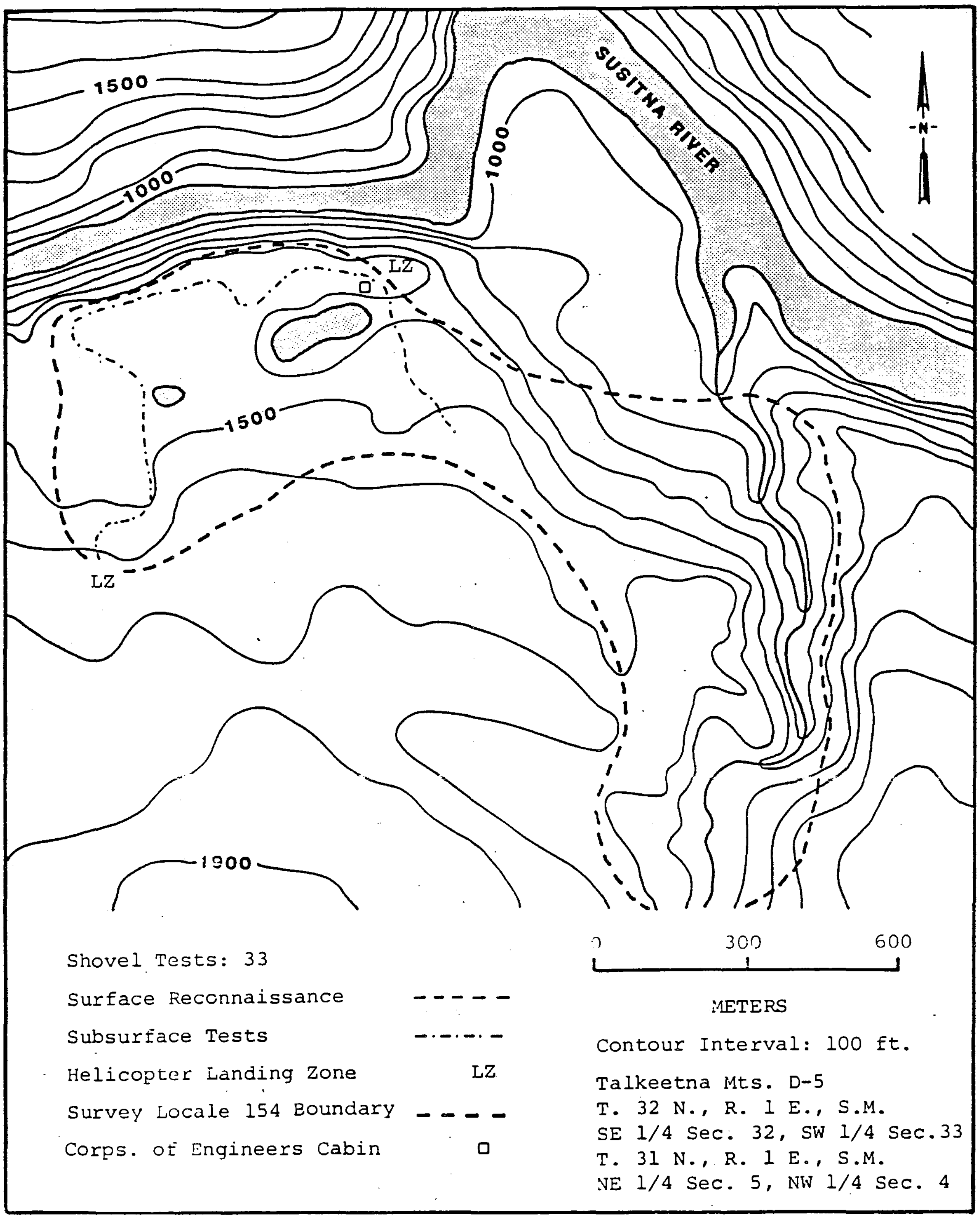


Figure A.120. Surface Reconnaissance and Subsurface Testing in Survey Locale 154.

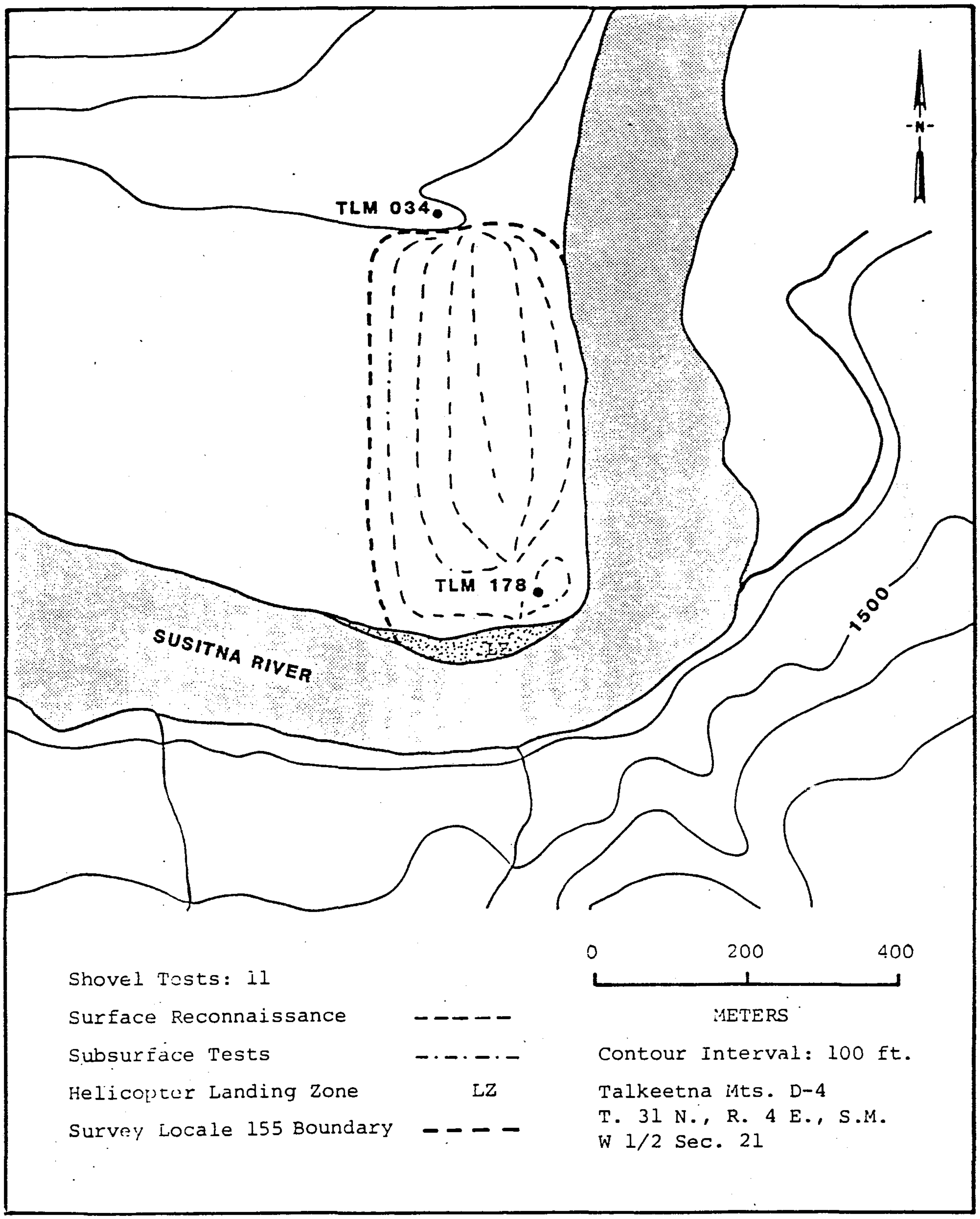


Figure A.121. Surface Reconnaissance and Subsurface Testing in Survey Locale 155.

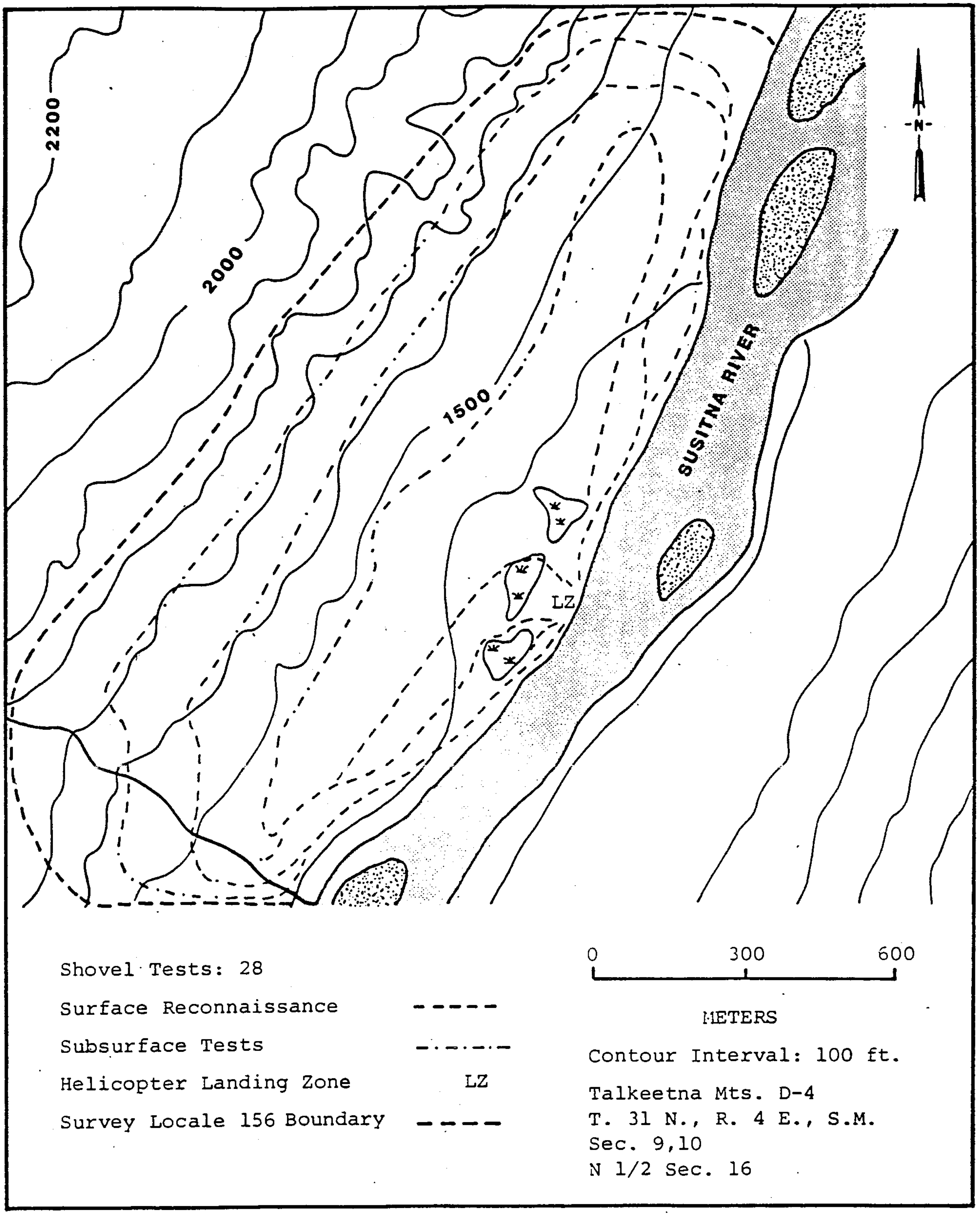


Figure A.122. Surface Reconnaissance and Subsurface Testing in Survey Locale 156.

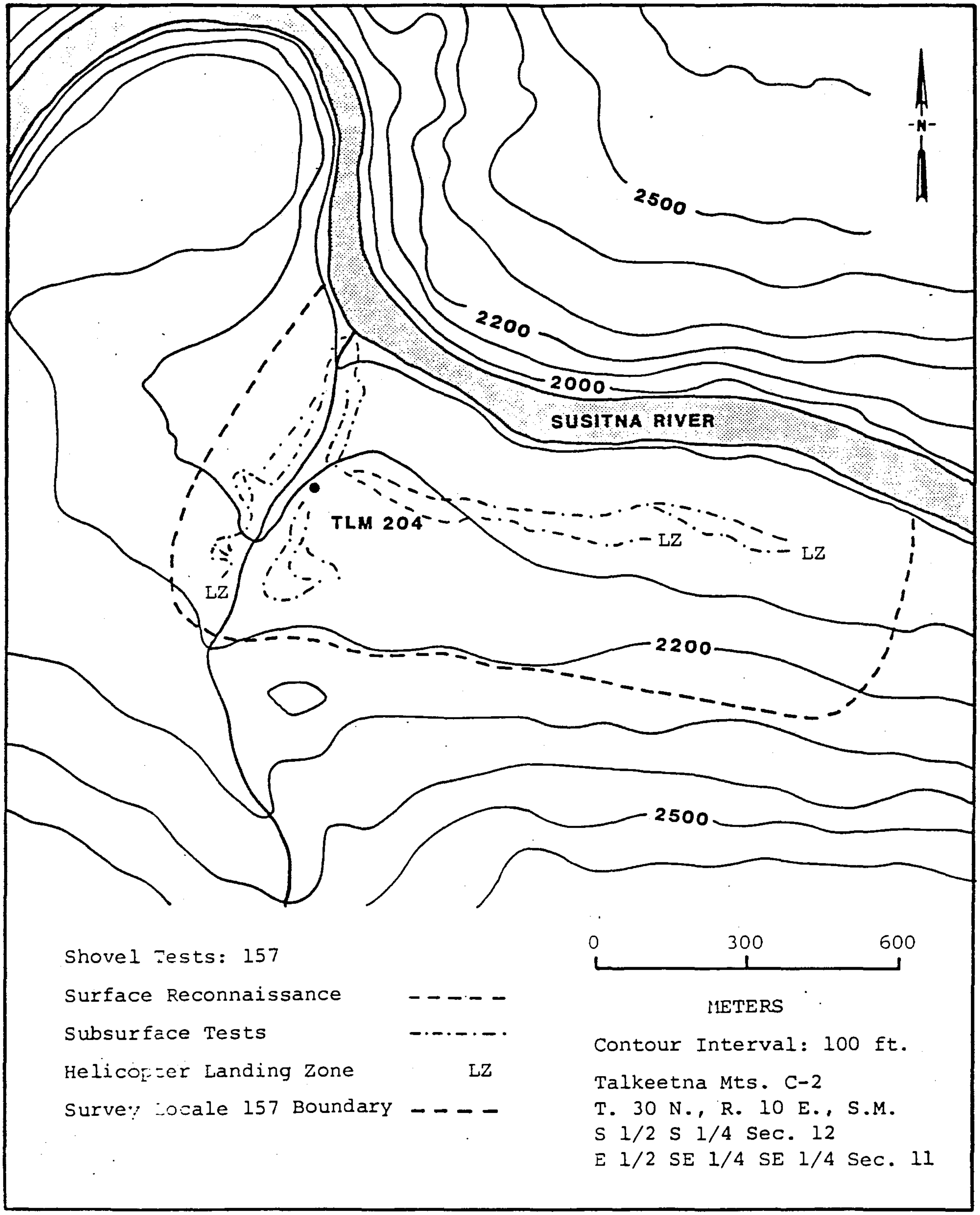


Figure A.123. Surface Reconnaissance and Subsurface Testing in Survey Locale 157.

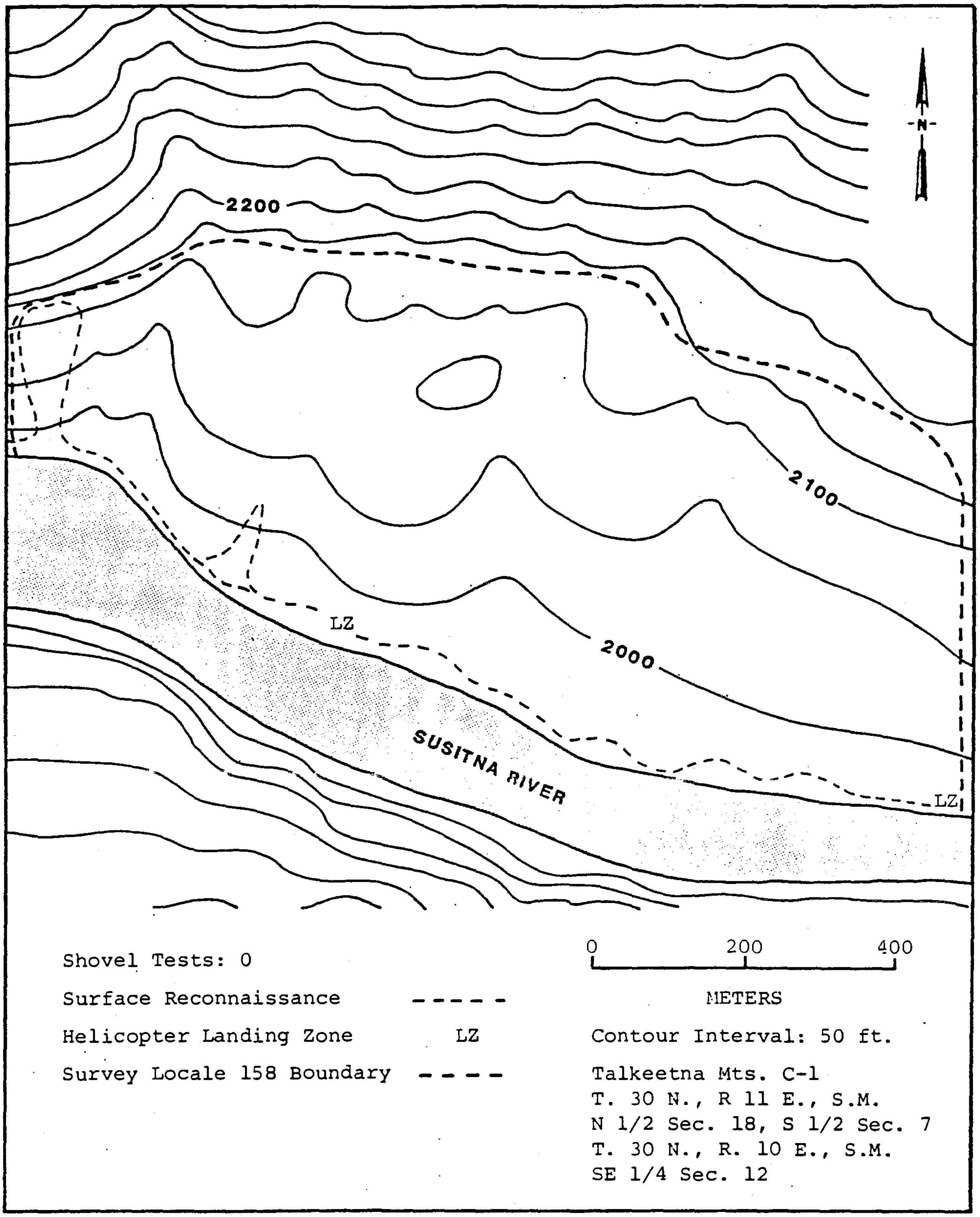


Figure A.124. Surface Reconnaissance and Subsurface Testing in Survey Locale 158.

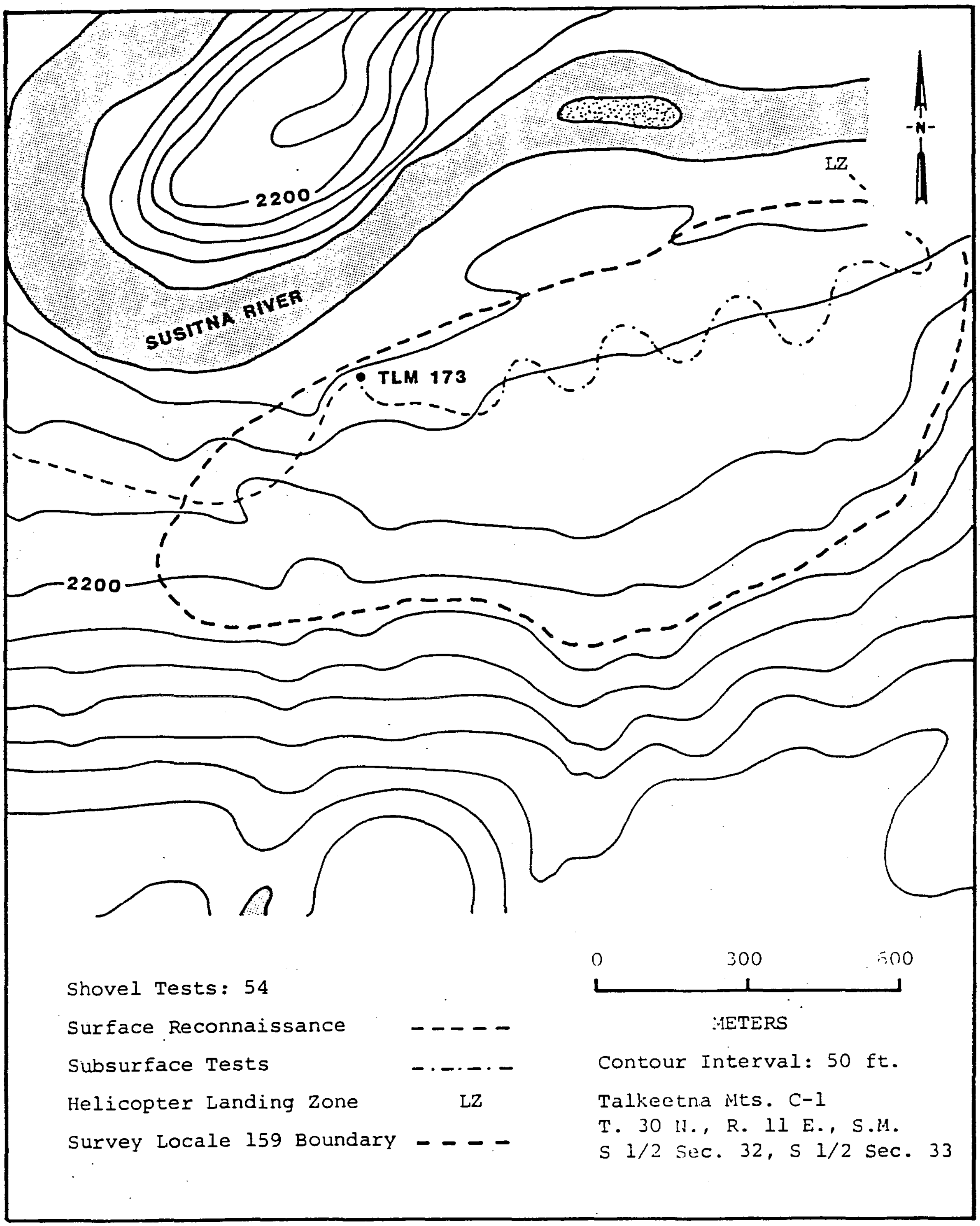


Figure A.125. Surface Reconnaissance and Subsurface Testing in Survey Locale 159.

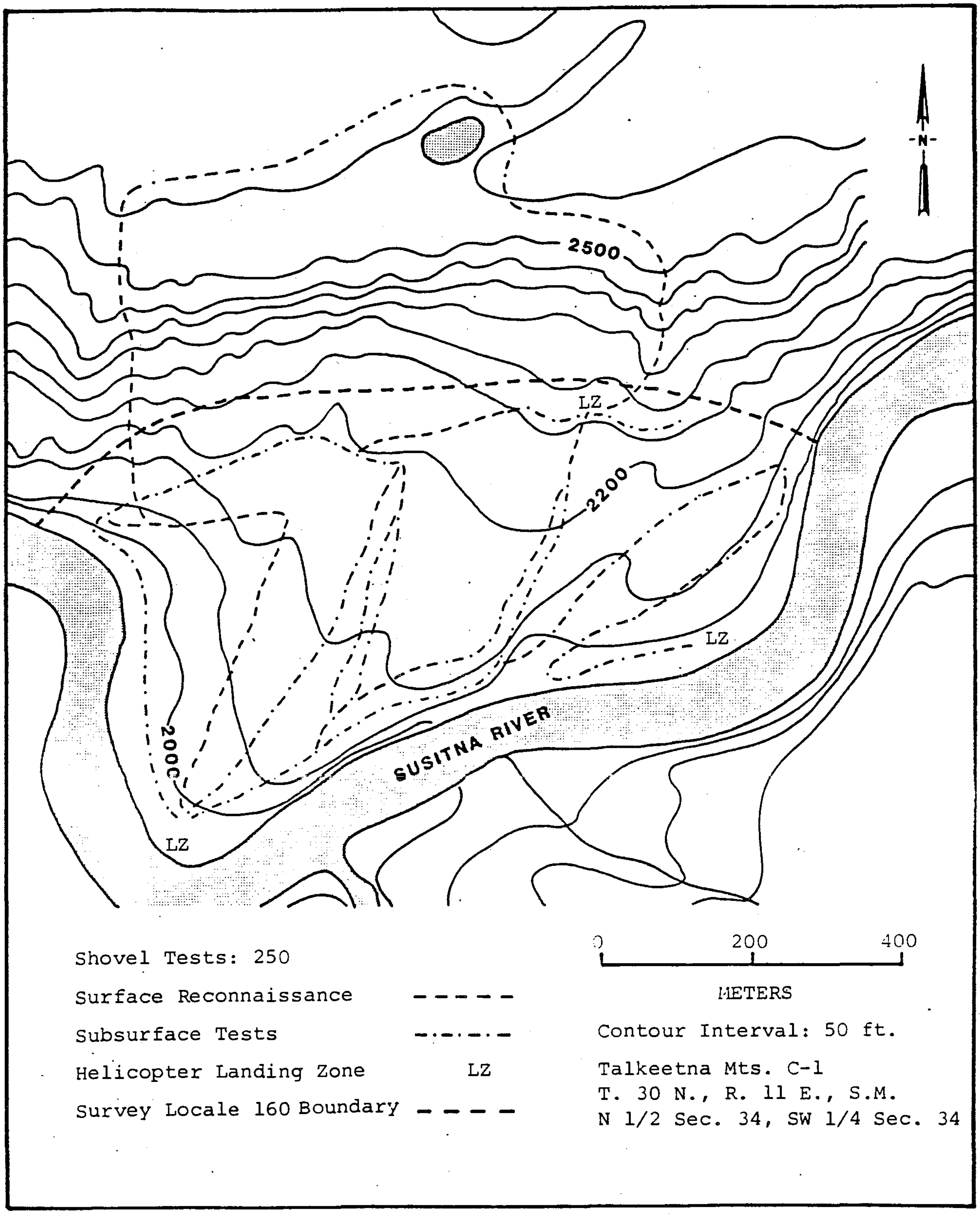
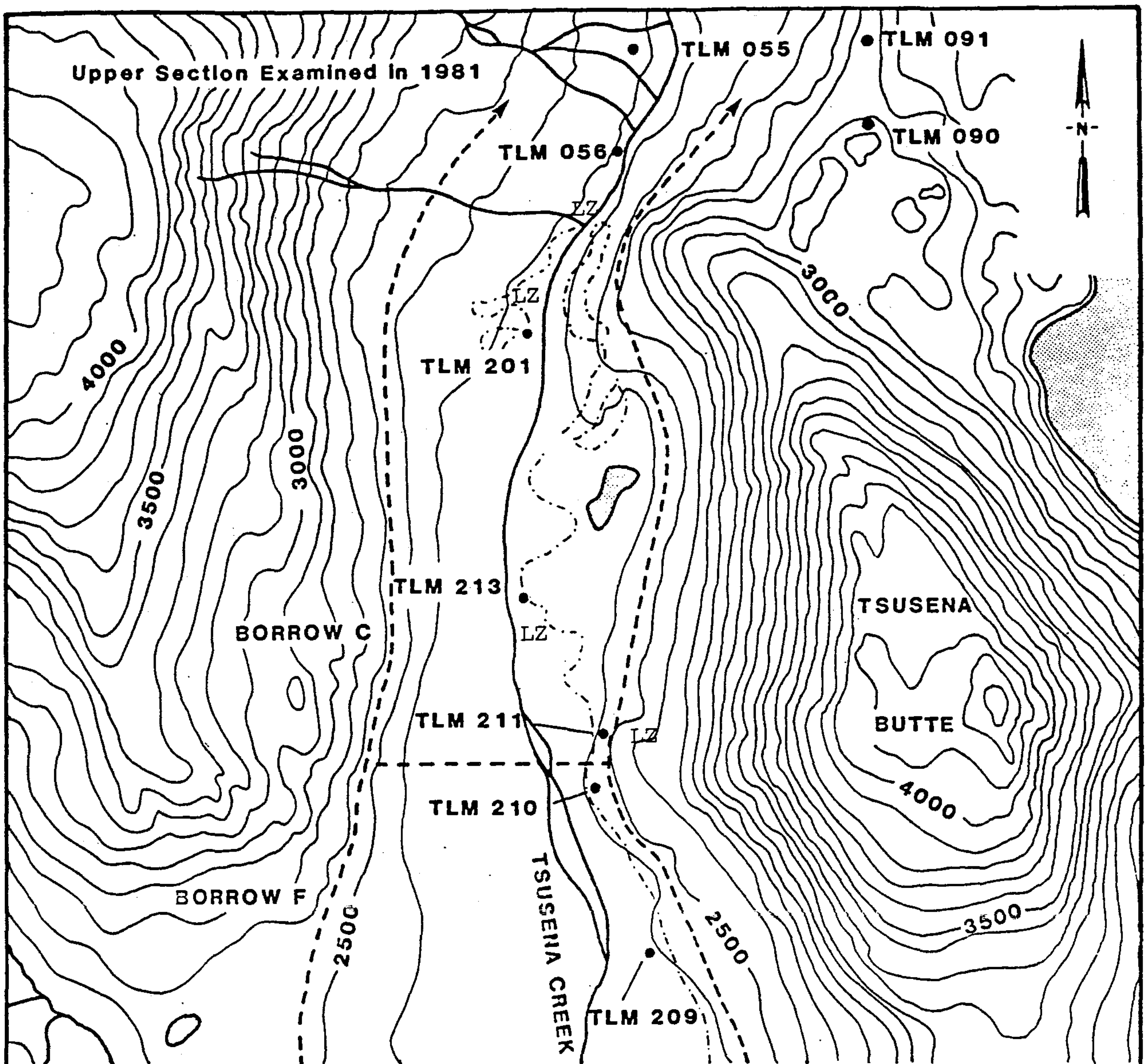


Figure A.126. Surface Reconnaissance and Subsurface Testing in Survey Locale 160.



Shovel Tests: 401 (Borrow C)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Borrow C, F Boundary ▬ ▬ ▬ ▬

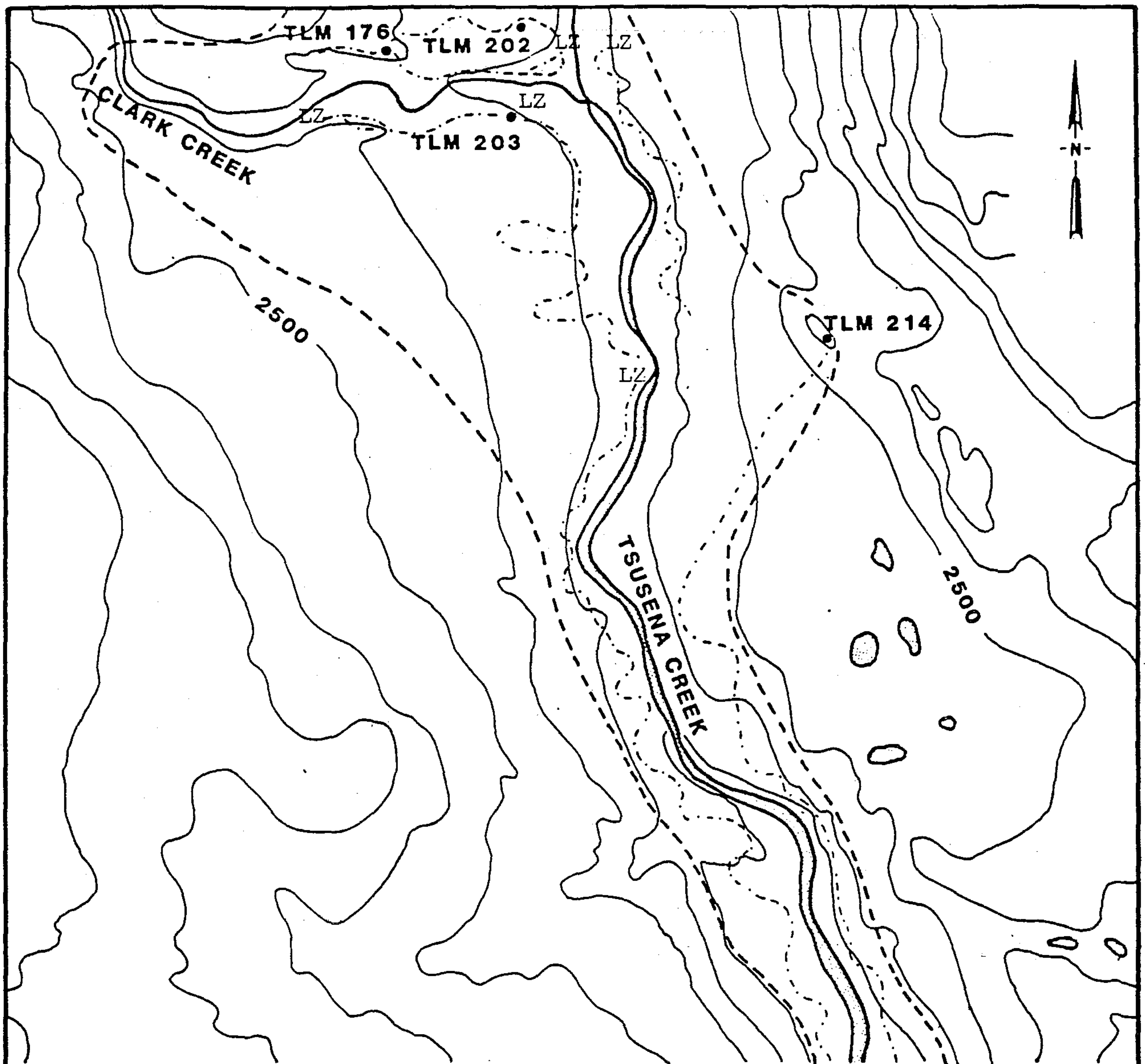
0 610 1220

METERS

Contour Interval: 100 ft.

Talkeetna Mts. D-4
T. 33 N., R. 5 E., S.M.
Sec. 19,20,21,28,29,30
S 1/2 Sec 16,17,18

Figure A.127. Surface Reconnaissance and Subsurface Testing in Proposed Borrow Areas C and F.



Shovel Tests: 736 (Borrow F)

Surface Reconnaissance -----

Subsurface Tests -.-.-.-

Helicopter Landing Zone LZ

Borrow F Boundary ----

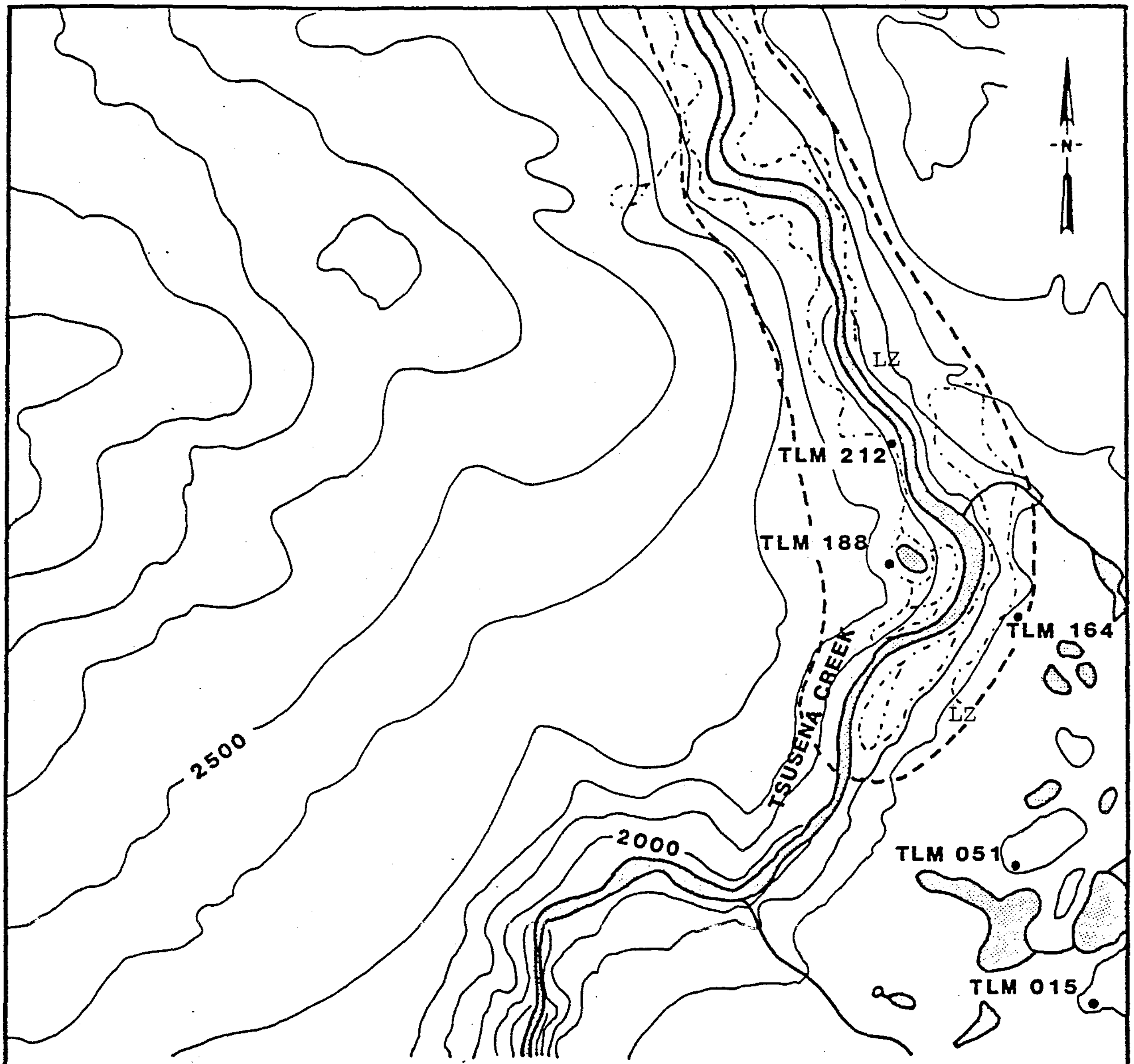
0 610 1220

METERS

Contour Interval: 100 ft.

Talkeetna Mts. D-4
T. 33 N., R. 5 E., S.M.
Sec. 31,32
T. 32 N., R. 5 E., S.M.
Sec. 4,5, E 1/2 Sec. 6

Figure A.128. Surface Reconnaissance and Subsurface Testing in Proposed Borrow Area F.



Shovel Tests: 736 (Borrow F)

Surface Reconnaissance - - - - -

Subsurface Tests -·-·-·-

Helicopter Landing Zone LZ

Borrow F Boundary — — — —

0 610 1220

METERS

Contour Interval: 100 ft.

Talkeetna Mts. D-4
T. 32 N., R. 5 E., S.M.
Sec. 8,9,16,17
N 1/2 Sec. 20,21

Figure A.129. Surface Reconnaissance and Subsurface Testing in Proposed Borrow F.