Section 110 Report

Cultural Resources Survey and Evaluation, Fort Wainwright and Training Lands

2010 and 2011

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By

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List of Acronyms

AHRS – Alaska Heritage Resource Survey
ANC – Anchorage
APE – Area of Potential Effect
ARPA – Archaeological Resources Protection Act
ATV – All Terrain Vehicles
BP – Years before Present
BRTA – Black Rapids Training Area
CEMML – Center for Environmental Management of Military Lands
cm – centimeter
cm BS – Centimeters below Surface
CMT – Culturally Modified Tree
CRM – Cultural Resources Manager
DEM – Digital Elevation Model
DOE – Determination of Eligibility
DTA – Donnelly Training Area
FAI – Fairbanks
FP – Firing Point
FRA – Fort Richardson
FS – Field Specimen
FWA – Fort Wainwright
GRTA – Gerstle River Training Area
ICRMP – Integrated Cultural Resources Management Plan
ITAM – Integrated Training Area Management
LA-ICP-MS – laser ablation inductively coupled plasma mass spectrometry
m – meter
mm – millimeter
MASL – Meters above Sea Level
MOUT –Military Operations on Urban Terrain
MRE – Meal-Ready-to-Eat
NHPA – National Historic Preservation Act
NRHP – National Register of Historic Places
PDZ – Potential Development Zone
PL – Point Located
SFAC – Soldier Family Assistance Center
SHPO – State Historic Preservation Officer
TARP – Training Area Restoration Plan
TFTA – Tanana Flats Training Area
UAC – Urban Assault Course
USAG – U. S. Army Garrison
USARAK – U. S. Army Alaska
USARAL – U. S. Army Alaska (historic)
USGS – U. S. Geological Survey
UTM – Universal Transverse Mercator

UXO – Unexploded Ordinance
WT – Warrior in Transition
XRF – X-ray fluorescence
XBD – Big Delta
XMH – Mt. Hayes
YTA – Yukon Training Area

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1.0 INTRODUCTION

Section 110 of the National Historic Preservation Act (NHPA: 16 U.S.C. 470) states that every federal agency must establish a preservation program for the identification, evaluation, nomination of sites to the National Register, and protection of historic properties. Although Army Regulation 200-1 requires full compliance with federal law, most Section 110 inventories and evaluations in Army training lands take place in coordination with Section 106 reviews of project undertakings. In recent years, Fort Wainwright's Cultural Resource Manager (CRM) has begun a consultation process with Range Control at Fort Wainwright (FWA) and Donnelly Training Area (DTA) to establish potential development zones (PDZs) based upon projected training needs. FWA and DTA are two large tracts of military managed land outside the FWA main post cantonment area. These PDZs are areas with no immediate undertakings, but regions that the Army plans to develop in the 2-10 year time range. Identification of PDZs has allowed the CRM to focus archaeological survey efforts, in addition to 106 projects, in the areas of FWA's 1.6 million acres considered most necessary.

The purpose of this report is twofold. First, it provides information on survey locations and archaeological site discoveries in FWA and its training lands during 2010 and 2011 that were not associated with Army undertakings and therefore not seen by the SHPO in Section 106 letters. Second, it summarizes all survey efforts by the Army's cooperative partner, Colorado State University's Center for Environmental Management of Military Lands (CSU-CEMML), since 2002 and lists all known sites managed by FWA.

Because this report summarizes all archaeological surveys and site identification from 2010 and 2011, some sites will have already been reported to the SHPO in Section 106 consultation letters. These sites are marked to differentiate them from sites that have not yet been reported.

All archaeological fieldwork was conducted by CEMML employees under the direct supervision of archaeologists meeting the professional standards outlined in the Secretary of the Interior's "Professional Qualifications Standards" as defined in 36 CFR §61. In 2010, all work was supervised by Edmund Gaines, M.A., and in 2011 all work was supervised by Julie Esdale, Ph.D. Three crews comprised of three to five archaeologists conducted the fieldwork.

1.1 Setting and Environment

FWA consists of the Main Post cantonment area and associated training lands, which include three main areas: the Yukon Training Area (YTA), the Tanana Flats Training Area (TFTA), and the Donnelly Training Area (DTA). These are located in central Alaska, north of the Alaska Range in the Tanana River Valley (Figure 1). The post lies 120 miles south of the Arctic Circle near the cities of Fairbanks and North Pole in the Fairbanks North Star Borough. FWA has the northern continental climate of the Alaskan Interior, characterized by short, moderate summers; long, cold winters; and little precipitation or humidity. Average monthly temperatures in Fairbanks range from -11.5° F in January to 61.5° F in July, with an average annual temperature of 26.3° F. The record low temperature is -66° F and the record high is 98° F. Average annual precipitation is 10.4", most of which falls as rain during summer and early fall. Average annual snowfall is 67", with a record high of 168" during the winter of 1970-71 (Natural Resources Branch 2002).

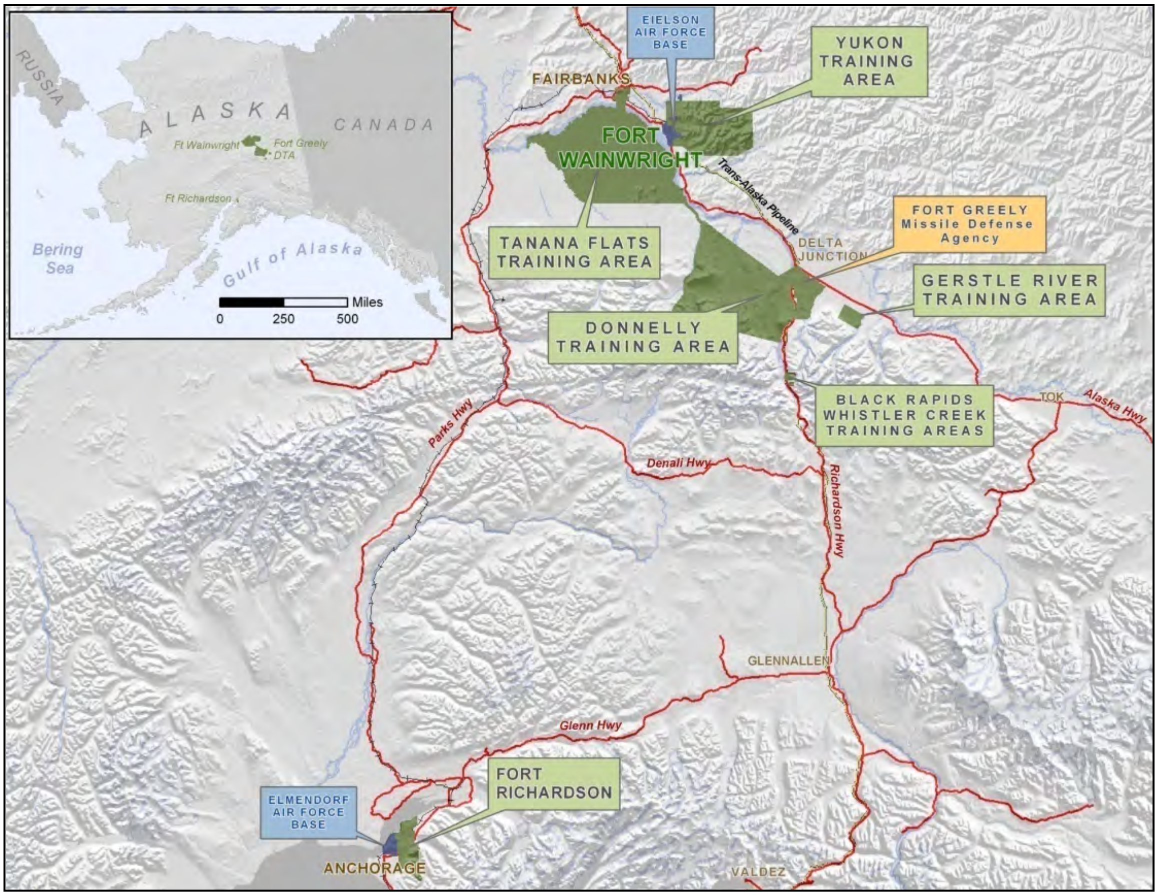

Figure 1. FWA training lands

1.2 Previous Work and Status of Archaeological Resources

Archaeological research on FWA training areas has resulted in numerous technical reports that provide information on surveyed areas and archaeological sites in military lands (Bacon 1979; Bacon and Holmes 1979; Dixon et al. 1980; Esdale and Robertson 2007; Espenshade 2010; Bradley et al. 1973; Gaines 2009; Gaines et al. 2010, 2010; Hedman et al. 2003; Higgs et al. 1999; Holmes 1979; Johnson and Bozarth 2008; Marshall 2007; Potter 2005; Potter et al. 2000; Rabich and Reger 1978; Raymond-Yakoubian 2006; Raymond-Yakoubian and Robertson 2005; Robertson 2010; Robertson et al. 2004, 2006, 2007, 2008, 2009; Staley 1993) and several scientific papers (Holmes and Anderson 1986; West 1967, 1975).

FWA and its training lands contain 636 known archaeological sites and 4 archaeological districts. Sixty sites are eligible for the National Register of Historic Properties (NRHP), 512 sites have not been evaluated, and 64 additional sites have been determined ineligible for the NRHP. Of the eligible or un-evaluated sites, 12 are historic sites and 560 are prehistoric sites.

Archaeological surveys of the FWA Main Post area began in 1979. Jim Dixon surveyed the north side of the Chena River and Birch Hill area, discovering and relocating several prehistoric archaeological sites (FAI-40, 41, 42, 43, 199, and 200) (Dixon et al. 1980). Surveys of the Main Post building areas continued in the 1980s by Julia Steele (Steele 1992, 1983) and Georgeanne

Reynolds (Reynolds 1983, 1985). No sites were found in these previously disturbed areas. John Cook surveyed the River Road pond in 1996 and found one site (FAI-509), which has failed to be relocated in subsequent attempts. In 2001, the Army began contracting cultural resource surveys and evaluations with Colorado State University's Center for Environmental Management of Military Lands (CEMML). Surveys by several different principal investigators have targeted areas of construction undertakings. Two historic sites (FAI-1603 and 1604) and one additional prehistoric site (FAI-1990) were found in these investigations. In 2011, CEMML completed surveys of the entire cantonment, north and south of the Chena River, discovering one additional historic site (FAI-2117). Of the 11 archaeological sites known from the FWA cantonment, 2 (FAI-1603 and 1604) have been determined not eligible. The remaining sites have not yet been evaluated.

Archaeological sites were first identified in the Tanana Flats Training Area (TFTA) in 1973 by Zorro Bradley and others who conducted a survey in the Blair Lakes area (Bradley et al. 1973). James Dixon continued surveys for archaeological district designations in the regions of Blair Lakes (District FAI-335), Clear Creek Butte (District FAI-336), and Wood River Buttes (District FAI-337) (Dixon et al. 1980). In 1993, proposed work in the Clear Creek Butte area prompted a contract to relocate several archaeological sites (Staley 1993.) These three districts have been revisited by CEMML archaeologists a few times over the last decade, and notably 92 new sites were found in 2009-2010 during survey of the Wood River Buttes, Salmon Loaf, and north and east of Blair Lakes. In total, archaeologists have identified 147 archaeological sites in TFTA. Of these sites, 11 have been determined eligible for inclusion in the National Register (FAI-44, 45, 46, 48, 49, 54, and 194 to 198), 2 are not eligible (FAI-1607 and 2046), and 134 remain to be evaluated for eligibility.

The road system in the Yukon Training Area (YTA) was the first of many areas to be investigated. Charles Holmes discovered 8 sites in a 1978 road survey (Holmes 1979). John Cook conducted a Determination of Eligibility (DOE) evaluation on one of these sites in 1979 (Cook 1979.) Michael Kunz surveyed the Stuart Creek area in 1992 but discovered no archaeological sites, and Northern Land Use Research's 1999 survey of Stuart Creek and the YTA road system uncovered one historic site (Higgs et al. 1999). CEMML archaeologists have been surveying portions of YTA in conjunction with construction projects on an annual basis since 2001. Currently, North Beaver Creek, Skyline, Johnson, Quarry, Brigadier, and Manchu roads in YTA are almost entirely surveyed, as is the area east of Skyline Road outside of the Stuart Creek Impact Area, McMahon Trench, the Manchu Range, and the majority of Training Areas 307 and 310, north and south of Manchu and Quarry roads. Twenty archaeological sites have been identified in YTA. Ten of the sites have been determined not eligible for listing in the National Register (FAI-157, XBD-93, 94, 95, 103, 104, 186, 260, 264, and 266), and ten have not been evaluated. XBD-162 will not be evaluated due to its location in a heavily used portion of the Stuart Creek Impact Area.

Archaeological investigations in what is now the Donnelly Training Area began in the 1960s, when Frederick West was searching for sites related to the first Americans (West 1967). He excavated the Donnelly Ridge site (XMH-5) in 1964 and found an assemblage containing microblade core technology similar to early Holocene Denali Complex sites. Several surveys of Ft. Greely and adjacent training lands in the late 1970s documented 64 new sites (Rabich and

Reger 1977; Bacon 1979; Holmes 1979; Bacon and Holmes 1979). Julia Steele surveyed various locations in DTA from 1980-1983, finding four additional new sites (Steele 1980, 1980, 1982, 1982, 1983, and 1983), and Georgianne Reynolds surveyed the Donnelly Dome area in 1988, locating one more (Reynolds 1988). Investigations in DTA from 1992-2002 were by D. Staley (Staley 1993), Tony Gamza (Gamza 1995), Andrew Higgs (Higgs et al. 1999), and Daniel Odess (Odess 2002). Sixteen new sites were found during this decade of fieldwork, and attempts were made to relocate old sites.

Concentrated efforts to expand survey coverage of DTA East began with CEMML archaeologists in 2002. Over 200 new sites were located in the Texas Range, Donnelly Drop Zone, and Eddy Drop Zone in the first half of the decade. In 2007, one site was found in the northernmost portion of DTA West by Ben Potter and others during survey for the Alaska Railroad Northern Rail Extension Project (Potter et al. 2007). In recent years, CEMML research aimed to evaluate many known archaeological sites in DTA for inclusion in the National Register in conjunction with use of the Battle Area Complex and its surface danger zone. Sites have also been discovered during surveys for road and trail maintenance. Potential expansions into DTA West, west of the Delta River, have prompted recent surveys into new areas such as Molybdenum Ridge, where 21 new sites were discovered in 2011. Because of its remote setting, however, the archaeology of Donnelly West is still poorly understood and represents a gap in USAG FWA's inventory of cultural properties. The Cold Regions Test Center (CRTC) has also contracted with CEMML and others since the last ICRMP to survey areas in DTA West, east of the Little Delta River, and many new archaeological sites have been recorded (Espenshade 2010).

To date, 455 archaeological sites have been identified within DTA. Forty-nine sites have been found to be eligible for the National Register, and 50 were found not eligible. An additional 356 sites remain to be evaluated. Historic archaeology sites are poorly represented in this region, with only six currently known to exist. The Donnelly Ridge District (XMH-388) encompasses Denali sites identified by Frederick West, south and west of Donnelly Dome. Future archaeological studies in DTA will concentrate on completing surveys of 100% of the land in DTA East, conducting DOEs on archaeological sites in high traffic areas, and exploring parts of DTA West that are opening up for expansion of military training activities.

The Gerstle River Training Area and Black Rapids Training Area (GRTA and BRTA), also managed by FWA, have been infrequently utilized by training activities, and very few surveys or identification of archaeological sites have occurred these areas. CEMML archaeologists surveyed two small portions of GRTA in 2011. One prehistoric site (XMH-1359) is previously known from this training area. Two sites, which have not been evaluated for the NRHP, have been discovered in BRTA (XMH-317, 318). Future research is planned for GRTA where military activities are planned to take place in the next five years.

1.3 Prehistoric Context

Interior Alaska has been continuously inhabited for the last 14,000 years, and evidence of this continuum of human activity has been preserved within and around FWA's training lands. Interior Alaska's ice-free status during the last glacial period provided a corridor connecting the Bering Land Bridge and eastern Asia to North America. This allowed small bands of nomadic peoples to colonize Alaska and the rest of the continent and began a period of habitation in Interior Alaska that has persisted through the entire Holocene, the arrival of European traders in the late 1810s, the Klondike gold rush of the late 19th and early 20th centuries, and the military development of the Interior during the middle of the 20th century. FWA's cantonment and training lands comprise a vast and still relatively un-surveyed region with areas of high potential for yielding evidence of this activity.

Alaska has long been regarded as the gateway to the Americas and has held archaeological interest as the possible location for the oldest archaeological sites in the New World. This is due to more than Alaska's proximity to Asia and ice-free condition at the end of the Pleistocene. Similarities between archaeological assemblages in Siberia and Alaska and the discovery of lanceolate projectile points in the muck deposits around Fairbanks in the early 1900s (which bore a resemblance to Clovis points of some antiquity in the American Southwest) also sparked interest in Alaska as a source area for all Native Americans.

After initial colonization, archaeologists generally divide Interior Alaska's prehistory into three broad archaeological themes: the Paleoarctic Tradition (12,000-6,000 years ago[1]), the Northern Archaic Tradition (6,000-1,000 years ago), and the Athabaskan Tradition (1,300-800 years ago) (Potter 2008). Archeological materials from these cultures are generally limited to lithic artifacts such as projectile points, cutting tools, scrapers, waste flakes from tool manufacturing, faunal remains, and hearths.

Reconstructions of paleoecological evidence suggest that the end of the Pleistocene was marked by a warming trend in Interior Alaska that may have contributed to initial colonization of the area (Bigelow and Powers 2001). Several sites in areas surrounding Army lands demonstrate that people began living in Interior Alaska 14,000 years ago. Significant sites in the Tanana Valley dating between 14,000-12,000 years ago include Healy Lake (Bigelow and Powers 2001), Walker Road (Bigelow and Powers 2001), Swan Point (Bigelow and Powers 2001), Mead (Bigelow and Powers 2001), and Broken Mammoth (Bigelow and Powers 2001). There are no sites in Alaska, however, that predate the oldest sites in the contiguous United States, nor do Alaska's oldest sites resemble the Clovis culture (Bigelow and Powers 2001). This makes Alaska's earliest inhabitants questionable ancestors to all Native Americans despite genetic evidence pointing to a north-central Asian homeland (Eshleman et al. 2003). The Younger Dryas cooling event from 13,000-12,000 years ago (Bigelow and Powers 2001) may have led to a temporary population decline (Potter 2008) in the Interior before permanent colonization. The Paleoarctic Tradition is a term is now generally used by archaeologists to refer to the earliest settled people known from all over Alaska. It was originally defined by Anderson[2] (Anderson 1968, 1970) as the earliest microblade-using tradition in the American Arctic, with a proposed relationship to northeast Asian late Pleistocene cultures based on similarities in these distinctive artifact types. Archaeological evidence indicates that early settlers camped on terraces, lake shores, buttes, and bluffs. By using these locations on high ground, they could locate and track prey that included large mammals such as mammoth and bison. Evidence from the Upward Sun River Site, located just 5 km southeast of TFTA, for example, demonstrates that hunter-gatherers

[1] All dates are given in calendar years *before present*.
[2] Anderson called it the "American Palaeoarctic Tradition," but most researchers use the shortened version.

in Interior Alaska were concentrating on bison and wapiti at the end of the Pleistocene (The Upward Sun River Site is also known for one of the earliest burials in the Americas. [Potter 2008; Potter et al. 2008; Potter et al. 2011]). It is likely that the treeless environment and nomadic nature of these peoples had a direct impact on the kinds of tools they fashioned. Stone, bone, antler, and ivory provided the most abundant material for manufacturing weapons and cutting tools. Artifacts typically associated with this culture include small stone microblades, microblade cores, bifacial projectile points, and unifacial scraping tools.

In Interior Alaska, this tradition historically included two cultural divisions called the Nenana and Denali complexes. The Nenana Complex was identified by Powers and Hoffecker from sites in the Nenana Valley (Powers and Hoffecker 1989). This complex began approximately 11,000 years ago with an artifact assemblage that included triangular or teardrop-shaped, bifacially worked projectile points ("Chindadn" points [Cook 1969; 1975; Holmes and Cook 1999]); large unifacial chopper-like tools; and flake tools. The Nenana Complex is defined as lacking microblades, microblade cores and burins, and was proposed to predate the microblade-rich Denali Complex. Many Nenana Complex archaeological sites are located in the Tanana Valley, adjacent to FWA training lands (Broken Mammoth [Holmes 1996; Yesner et al. 1999], Chugwater [Lively 1996], Donnelly Ridge [West 1967; 1996, Donnelly Ridge is located in DTA], Healy Lake [Cook 1989], Mead [Holmes 2007] and Swan Point [Holmes et al. 1996; Holmes 1998, 2007]).

The Denali Complex, dated roughly to 10,500 to 8,000 years ago, was originally defined by West (West 1967; 1975) and includes distinctive wedge-shaped microblade cores, core tablets and their derivative microblades, large blades, biconvex bifacial knives, certain end-scraper forms, and burins. West later defined the Denali Complex as a regional variant of the American Paleoarctic Tradition (West 1981). Denali sites in the vicinity of FWA's training lands include Mt. Hayes (West 1996), Swan Point (Holmes et al. 1996; Holmes 1998, 2007), and Gerstle River (Potter 2001). At least one site in TFTA (XMH-2043) has also been dated to this period.

The relationship between the proposed Nenana and Denali complexes is as of yet unresolved. As discussed above, some researchers view the Nenana Complex as a bifacial industry that predates the microblade-based Denali Complex. However, current research at sites such as Swan Point and Broken Mammoth indicates that microblades and burins were used by the earliest known cultures in Interior Alaska, with a later co-occurrence with Chindadn points—the defining artifact type of the Nenana Complex. Although some archaeologists still believe that there is a cultural distinction between the Nenana and Denali complexes (e.g., Dumond 2001), the general understanding from Interior Alaskan archaeologists is that there is a behavioral explanation for the presence or absence of microblades in different assemblages (Holmes 2001; Potter 2008; Yesner and Pearson 2002). Moreover, both Nenana and Denali technology persist in central Alaska throughout the Holocene (Bever 2006).

Site density declined in the areas around FWA in the early Holocene, suggesting a slight depopulation during a period of climate change which initiated the widespread establishment of spruce forests (Potter 2008). The boreal forest in Interior Alaska was established by 8,000 years ago (Bigelow and Powers 2001). Sites from this time period are less well publicized than the older sites, but include Houdini Creek (circa 8,600 years old), Hurricane Bluff (c. 9,800 years old), Lucky Strike (c. 8,500 years old), Gerstle River (c. 10,000 years old), and the Campus Site (c. 7,700 years old) (Pearson and Powers 2001; Potter et al. 2007; Potter 2008). Bison, wapiti, and birds were the most important subsistence game during this period (Potter 2007, 2008).

Site density increased again after about 6,000 years ago in Interior Alaska (Potter 2008). This population increase coincides roughly with the Northern Archaic Tradition and the appearance of side-notched projectile points. Anderson originally defined the Northern Archaic Tradition to specifically address notched point-bearing stratigraphic horizons that did not contain microblades at the Onion Portage site in northern Alaska (Anderson 1968). Alaskan notched points were generally similar to Archaic-age dart points in the contiguous United States. Time has shown middle Holocene assemblages in Alaska to be quite diverse, however, and it is questionable whether this trait is related to southern forms or if it is a reliable indicator of cultural affiliation (Clark 1992; Cook and and Gillespie 1986). Artifact assemblages associated with this culture can vary but generally contain myriad tools ranging from bifacial knives and microblades to end scrapers and side-notched points. Middle Holocene hunter-gatherers had a subsistence economy focused on seasonally abundant game including caribou, fish, and moose (Potter 2008). Notched point assemblages occur in many sites in Interior Alaska including over one dozen on Army lands (XBD-277, XMH-277, XMH-283, XMH-303, XMH-309, XMH-874, XMH-950, XMH-1130, XMH-1168, XMH-1300, Robertson et al. 2004, Raymond-Yakoubian and Robertson 2005.) Several sites (XBD-270, XMH-915, XMH-925), including the excavated Banjo Lake site in DTA (XMH-874), have also produced middle Holocene dates from hearth charcoal. The 6,300-6,700-year-old dates from Banjo Lake were also associated with a microblade component (Robertson et al. 2008).

Utilization of microblade and burin-based industries appears to continue through the middle and late Holocene in Interior Alaska (Esdale 2008; Potter 2004). By the late Holocene, archaeologists see a shift from seasonal large mammal hunting with a nomadic lifestyle to a focus on seasonally over-abundant resources, use of storage, and more permanent settlements (Potter 2008b). Artifact assemblages do not drastically change until the last millennium of the Holocene when microblades disappear from the archaeological record (Potter 2008).

Linguistic evidence suggests that the Athabaskan culture may have appeared in the Tanana Valley as early as 2,500 years ago. Through ethnography, oral history, and a broad array of cultural items, much has been learned about Athabaskan culture and history in the region. Artifacts associated with the Athabaskan culture are exceptionally diverse and include bone and antler projectile points, fishhooks, beads, buttons, birch bark trays, and bone gaming pieces. In the Upper Tanana region, copper was available and used in addition to the traditional material types to manufacture tools such as knives, projectile points, awls, ornaments, and axes (Clark 1981). A late prehistoric Athabaskan occupation is recognized at several sites in and around FWA's training lands (Andrews 1975; Andrews 1987; Cook 1989; Mishler 1986; Sheppard et al. 1991; Shinkwin 1979; Yarborough 1978). Of particular interest in this regard is a copper projectile point recently found in a buried context at DTA (XBD-272) (Robertson et al. 2009).

The Athabaskan Tradition includes late prehistoric and proto-historic cultures generally believed to be the ancestors of Athabascan tribes who currently inhabit Interior Alaska. Excavated Athabaskan sites are rare, but the limited body of evidence allows for several generalizations.

Raw material usage was reorganized in the Athabaskan Tradition, which de-emphasized stone tool making and increased the emphasis on the manufacture of items from native copper and organic materials (Dixon 1985). Assemblages include ground and pecked stone artifacts and an increased use of expedient tools. There was a broadening and diversifying of the resource base at this time to include small mammal and freshwater marine animals such as fish and mollusks (McFadyen Clark 1981; McFadyen Clark 1996; Ream 1986; Sheppard et al. 1991; Shinkwin 1979). Athabaskan sites tend to occur in resource-rich areas near lakes, streams and rivers, and are generally characterized by large house pit and cache pit features. Proto-historic Athabaskan assemblages include Euro-American trade goods such as glass beads and iron implements. Sites of this time period reflect an increased reliance on outside trade and include log cabins co-occurring with traditional house pits, as well as a change in site location to maximize trading opportunities (Andrews 1975; Andrews 1977; Andrews 1987; McFadyen Clark 1981; VanStone and Goddard 1981).

Athabascan settlement patterns depended greatly on the availability of subsistence resources, and Interior bands lived a nomadic lifestyle. They often traversed vast areas to support themselves and spent considerable time engaged in subsistence activities. It was often necessary for bands to divide into smaller groups to find game, and preserved fish were used as a staple of the diet in addition to fresh game (Andrews 1975).

Four Athabascan linguistic and geographic groups have inhabited the Tanana Valley: the Upper Tanana, Tanacross, Tanana and Koyukon. Each group is further distinguished according to geographic location. Bands of the Tanana and Tanacross groups are historically associated with the geographic area that embodies Forts Wainwright and Greely. Salcha, Chena, Wood River, Goodpaster, and Healy Lake bands have inhabited the region since protohistoric times and possibly even prehistoric times (Andrews 1975). Use of the region varied from one band to the next. The Salcha, Chena, Goodpaster, and Wood River bands of the Tanana Athabascans and the Healy Lake band of the Tanacross Athabascans used certain parts of what are now Forts Wainwright and Greely (McKennan 1981). Several villages have been reported on or near FWA. One occupied by the Wood River band is said to have been located in the southern part of FWA but has not been found (Dixon 1980; Reynolds 1986). The Blair Lakes Archaeological District (FAI-335) on FWA may relate to the prehistory of the Athabaskan Tradition. Euro-American historic archaeological sites are also present (Gamza 1995; Phillips 1984).

1.4 Historic Context

1.4.1 Early History

With the beginning of Euro-American contact in Interior Alaska in the early 19th century, trade influences and influxes of new populations began to change life in the region. Land use patterns shifted from traditional indigenous uses to activities based on Euro-American economic and political systems. FWA's training lands fall within an area occupied at the time of Euro-American contact by Lower-Middle Tanana Athabascans, including bands described generally as the Salcha, Big Delta-Goodpaster, Wood River, and Chena bands (McKennan 1981; Andrews 1975; Mishler 1986). Historical accounts document traditional settlement patterns that were focused on a widely mobile seasonal round, with the fall caribou hunt playing a pivotal role in subsistence preparations for the winter, and summer activities focused at fish camps, berry and root collecting and in sheep hunting. These activities were frequently communal, with several local bands connected by common interest, geography and intermarriage. Despite anthropological attempts to define boundaries for the peoples living in the lower Tanana River Valley, natural terrain served as the only definable boundary to settlement patterns (McKennan 1981).

As Euro-American traders, miners, missionaries and explorers moved into the Tanana River Valley, the traditional life ways of local Athabascan groups were disrupted. Access to trade goods and the development of the fur trade not only affected traditional material culture, but also began to dramatically affect subsistence activities and settlement patterns. Similarly, the arrival of missionaries in the Alaskan Interior profoundly influenced traditional social organization. The introduction of mission schools for Native children and the doctrine of new religious beliefs contributed to an erosion of traditional practices (McKennan 1981).

Russian fur traders began settling Interior Alaska starting in the 1810s, establishing a post at Nulato on the Yukon River and one at Taral on the Copper River. British traders established Fort Yukon in 1847. Trade goods from these posts may have passed to Tanana Athabascans and Upper Tanana Athabascans through intra-Native trade networks. Direct contact between Tanana Athabascans and white traders increased after the 1860s. With the U.S. purchase of Alaska in 1867, control of trading stations and the fur trade passed to Americans. Through the 1880s, American traders established several additional posts on the Yukon and Tanana rivers, including locations at Nuklukayet (modern-day Tanana), Belle Isle (modern-day Eagle), and Fort Yukon.

Trade goods introduced by Euro-American settlers influenced the Native lifestyle. Clothing, staples, tools, and other necessities could be obtained through trade. Guns allowed hunters to obtain game with greater efficiency. Gradually, Athabascan Native groups began to alter their traditional nomadic patterns in favor of more permanent settlements. However, while significant, this contact would not have as dramatic an impact on the region as the discovery of gold in the Interior during the last decades of the 19th century. The towns established by Euro-American settlers at the turn of the 20th century, in response to the Klondike Gold Rush and the eventual military development of the region, would rapidly and permanently change the demography and economy of Interior Alaska.

Gold strikes in the Fortymile River region, Birch Creek area, and the Canadian Klondike began drawing miners and prospectors north in the 1880s and 1890s. In response to this gold rush, E.T. Barnette established a trading post on the Chena River in 1901. The following year, prospector Felix Pedro discovered gold nearby, and a new gold rush soon led to the founding of Fairbanks at the site of Barnette's original trading post. Most mining activities in the region occurred on creeks north of Fairbanks, with the town serving as a supply center. Agricultural and other commercial activities, such as lumber, also developed to support mining activities in the Fairbanks area. Homesteads existed on parts of what is today the Main Post of FWA as early as 1904.

In 1898, the discovery of gold in the Tanana uplands began a rush of Euro-American settlement into the Tanana River Valley. As the economic importance of the Tanana Valley increased, the need for reliable transportation routes and communication systems rose in tandem. Existing trails, such as the Bonnifield, Donnelly-Washburn and Valdez-Fairbanks trails, saw increased use and development in the first decade of the 20th century. This increase in activity also resulted in the establishment of several roadhouses and posts. In 1906, Congressional appropriations led to improvement of the Valdez-Fairbanks Trail, crossing the Alaska Range south of Delta Junction, following the Tanana River to Fairbanks. Completion of the Alaska Railroad in 1923 was followed two decades later by construction of the Alaska Highway in 1942, firmly tying the Alaskan Interior to the outside.

As Fairbanks grew in the first decade of the 20th century, several agricultural homesteads were developed on lands now encompassed by sections of the FWA cantonment. These homesteads provided Fairbanks with a variety of agricultural products and wood for fuel, but were subsumed when lands were withdrawn for the creation of Ladd Field, which later became FWA (Price 2002).

Riverboats were the primary means of getting people and supplies into the Interior at the turn of the 20th century. The Fairbanks town site was located at the upper limit of navigation for stern-wheeler riverboats on the Chena River. Upriver from that point, residents navigated the river using shallow-draft boats in summer and sleds in the winter. As commerce in the area increased, roads and trails were constructed, sometimes following earlier indigenous routes. The major overland route to tidewater was the Valdez-Fairbanks Trail, which began as a military trail from Valdez to Eagle in 1899.

Transportation and communication networks, including the Alaska Railroad, were developed to serve new settlements in Interior Alaska. A branch of the railroad route was extended to Fairbanks in 1904. Roadhouses along the route catered to travelers. Some of these roadhouses were located out on what are now FWA training lands. One property was on the Bonnifield Trail in the Tanana Flats Training Area while two roadhouses and a seasonal tent operation existed along the Donnelly-Washburn Trail in the current Donnelly Training Area. Secondary routes connected Fairbanks to the surrounding mining districts.

By 1910, most of the easily accessible placer gold deposits were exhausted, and capital-intensive technologies became necessary to extract remaining deposits. These methods were not possible with the existing transportation infrastructure. The completion of the Alaska Railroad in 1923 expanded transportation options for the region, connecting Fairbanks to the tidewater at Seward and making large-scale dredging operations economically feasible. Aviation also became a key component of Interior transportation, beginning in earnest in the 1920s. However, it was not until 1931 that Weeks Field, originally constructed in 1923, was officially dedicated as an airfield. Industrialized corporate activity became the hallmark of the region’s mining in the remaining years before World War II.

Development in the Alaskan Interior increased dramatically with the advent of World War II and subsequent military build-up in Alaska. Of particular significance was the development of airfields near Delta Junction (Fort Greely), Fairbanks (Ladd Field, later FWA), and 26 miles southeast of Fairbanks (Eielson Air Force Base). These locations began as Lend-Lease bases and cold weather testing centers, but soon expanded with the increased need for military support during World War II and later during the Cold War.

Full historic contexts of early mining, transportation, and homesteads on FWA have been completed. These studies have determined that there are no properties eligible for the National Register under these contexts. Several village sites associated with the early contact period have been reported near FWA. One was reported near Wood River Buttes, two just northwest of the installation's boundary, and one near Fairbanks (Reynolds 1986). None have been reported or located on the Main Post.

1.4.2 Ladd Field National Historic Landmark

In 1935 Ladd Field was authorized as a small cold weather testing station that was envisioned by General H. H. Arnold. Construction began in 1939, and by 1940 Ladd Field was operational.

Cold weather testing at Ladd Field helped to improve the aircraft and equipment used by front-line aircrews. The Cold Weather Test Detachment's experimental tests contributed to the development of aircraft design, ground procedures and personnel equipment with stateside research agencies and manufacturers. After the start of World War II, Ladd Field also served as the transfer point for the Alaska Siberia (ALSIB) Lend-Lease aid to the Soviet Union. From 1942 to the end of the war in 1945, Ladd Field saw 7,926 aircraft and associated cargo change hands. Though it was controversial, the Lend-Lease aid to the Soviet Union played some part in the eventual defeat of Nazi Germany. Ladd Field also served as an air depot for the repair and supply of aircraft under the Air Transport Command, processing thousands of passengers as well as tons of cargo and mail.

In 1984, Ladd Field was listed on the National Register of Historic Places. Ladd Field was listed as significant for three main themes:1) cold weather testing, 2) aircraft repair, supply depot and air transfer hub and 3)as the transfer point for aircraft and cargo transiting the ALSIB route to the Soviet Union.

1.4.3 Ladd Air Force Base Cold War Historic District

In 1947, the Air Force became a separate service, and Ladd Field became known as Ladd Air Force Base (AFB). Missions flown out of Ladd AFB played a significant role in the early years of the Cold War confrontation with the Soviet Union. Early in the Cold War, military planners decided on a heartland concept for Alaskan defense, concentrating on bases near Anchorage and Fairbanks as the strategic anchor points. Ladd AFB became the Northern Sector Headquarters for the Alaskan Air Command, and its foremost missions during the Cold War were air defense, strategic reconnaissance and arctic research.

Ladd AFB's air defense mission was part of the plan to deter the Soviet Union from taking Alaskan territory and using it as a base from which to threaten the continental United States. Ladd AFB hosted tactical fighter intercept squadrons and combat alert cells. An Air Defense Command Center located on Ladd AFB was responsible for directing air battles in Alaska's northern sector. It also provided support to segments of the Distant Early Warning Line. In the earliest years of the Cold War, Ladd AFB hosted some of the first long-range strategic aerial reconnaissance units.

Ladd AFB was also the scene of significant Cold War arctic research. The cold weather equipment testing, begun during World War II, continued through the Cold War and expanded to include the Arctic Aero medical Laboratory (AAL). The AAL studied human adaptation to Arctic and Sub-Arctic climates with an eye toward military applications.

In 2001, the Ladd AFB Cold War Historic District was determined eligible for the National Register of Historic Places. It was determined to be significant for its role in the early Cold War missions of the 46th/72nd Air Reconnaissance unit and for the fighter intercept squadrons stationed here.

1.4.4 Fort Wainwright

In 1960, Ladd AFB was transferred to the Army and was renamed Fort Jonathan Wainwright on January 1, 1961. In Alaska, Cold War missions were predominately under the command of the Air Force with the Army providing ground force defense and logistical supply. The Army also carried out cold weather training tactics and cold weather equipment testing. The onset of the Vietnam War and its high costs drained the Army's resources; troops at Wainwright were reassigned or deployed, causing a significant decrease in the post's population. In 1986, the mission of the post changed once again with the assignment of the 6th Light Infantry Division to FWA. Since 1986, FWA's mission has been to support worldwide deployment.

2.0 FWA CANTONMENT AND ADJACENT TRAINING AREAS

2.1 Introduction

The FWA cantonment and adjacent training areas (Figure 2) consists of approximately 15,500 acres east of Fairbanks on the floodplain of the Chena River. The Main Post lies within the Tanana-Kuskokwim lowland. This depression was subsiding as the Alaska Range was rising to the south and filling with sediments from those mountains. The area is bounded by uplands to the north, the Alaska Range to the south, and consists of alluvial fans extending northward from the mountains. The Tanana River flows along the northern edge of the lowland. The terrain is generally flat lowland, ranging from 128 to 512 feet above sea level (Nakata Planning Group 1987). Bedrock is primarily composed of Precambrian Birch Creek schist, with few areas of granite and quartz diorite. The cantonment is covered by alluvial sediments and a thick mantle of micaceous aeolian silt (loess) derived from outwash plains south of the Tanana River (Muhs and Budahn 2006). Soils are typically well-drained, brown silt loam associated with poorly-drained silt loams in depressions and drainages (Natural Cooperative Soil Survey 1999).

Fort Wainwright has four vegetation types: moist tundra, treeless bogs, open low-growing spruce forests, and closed spruce-hardwood forests. The white spruce-paper birch forest of Interior Alaska is often called the boreal forest or taiga. Vegetation types of Interior Alaska form a mosaic and reflect fire history, slope and aspect, and presence or absence of permafrost (Viereck and Little 1972). Forests are dominant, diverse ecosystems on cantonment and adjacent training lands. Vegetation ranges from pure stands of spruce or hardwoods to spruce/hardwood mixtures.

2.2 Cantonment Surveys

All surveys in the FWA cantonment during the 2010 field season were associated with Army undertakings. In 2011, an effort was made to complete systematic surveys of all previously un-surveyed areas of the cantonment, north and south of the Chena River. Portions of the Small

Arms Complex south of the Richardson Highway (see Figure 2) were also surveyed in 2010. Large parts of the complex are off-limits to archaeologists due to danger from unexploded ordinances.

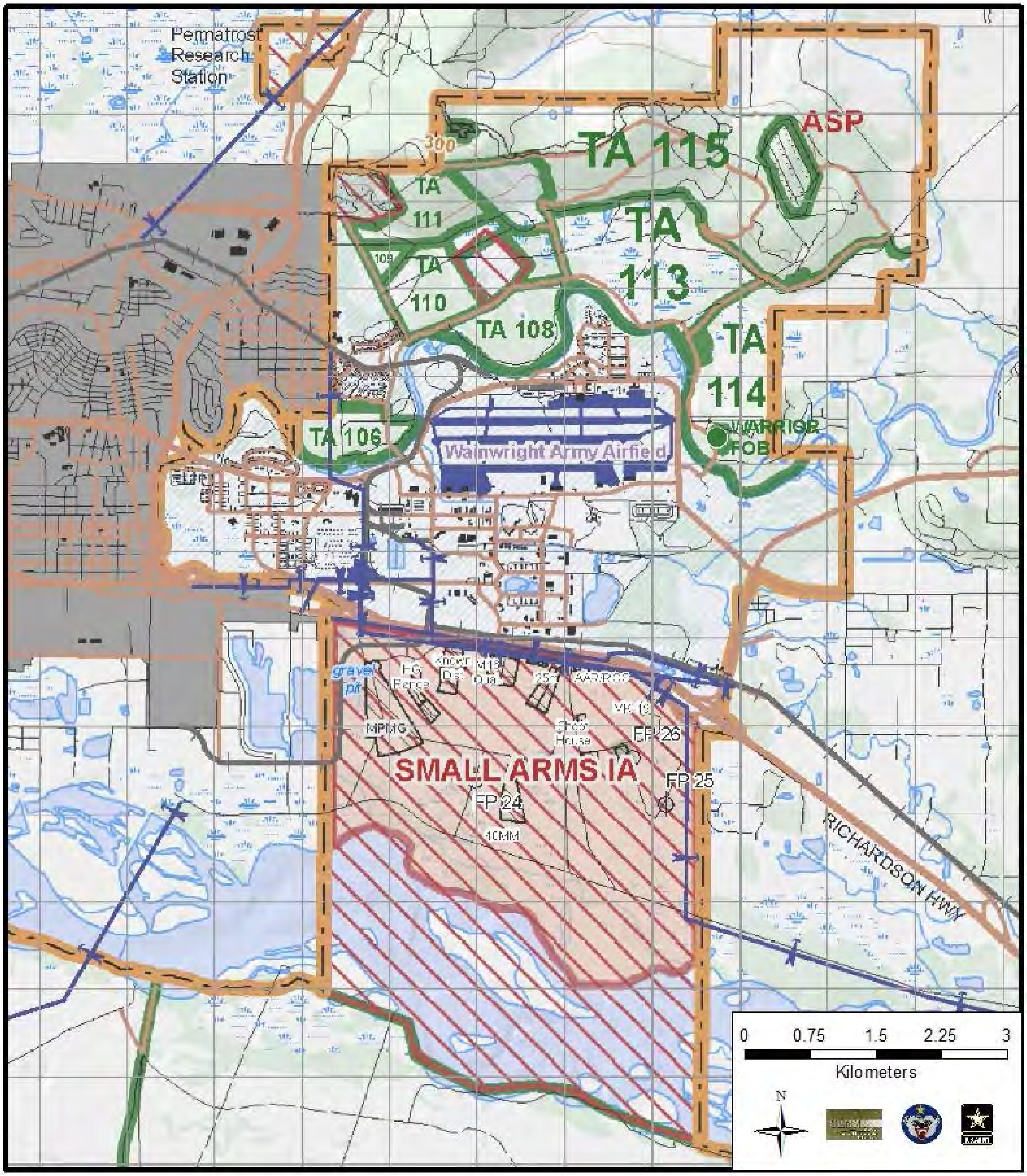

Figure 2. FWA cantonment

In 2010, the Small Arms Complex (red in Figure 2) was the concentration of an archaeological survey both as a part of two small undertakings (previously reported to the SHPO) and for Section 110 inventory. Much of the Small Arms Complex is restricted due to the possible presence of dudded impacts, and several areas are considered disturbed (Figure 3). The portions of the Small Arms Complex surveyed in 2010 (425 acres) are shown in Figure 4. Section 106 surveys on the cantonment included the golf course clubhouse area and Chena Bend bike trails (SHPO letter 9/10/10) (included in 2010 survey layer, Figure 4)[3].

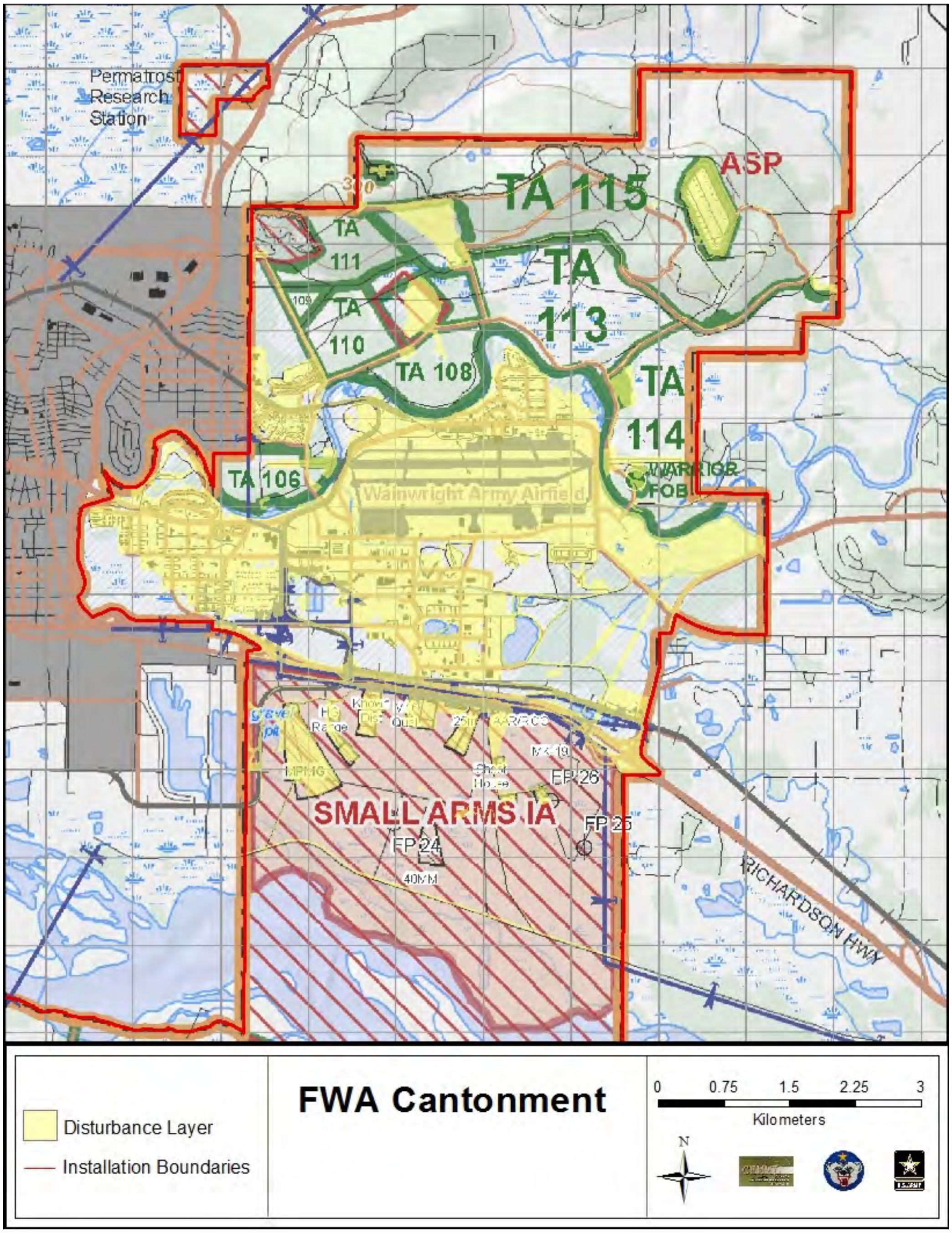

Figure 3. Cantonment disturbance layer

[3] All section 106 activities for 2010 and 2011 are listed in Appendix 4.

In 2011, much of the cantonment north and south of the Chena River (5955 acres, Figure 4) was surveyed for Section 110 inventory. That total includes surveys of Birch Hill (1170 acres) and TA 108 (196 acres) for Section 106 projects already reported in letters to the SHPO (SHPO letter 8/30/11).

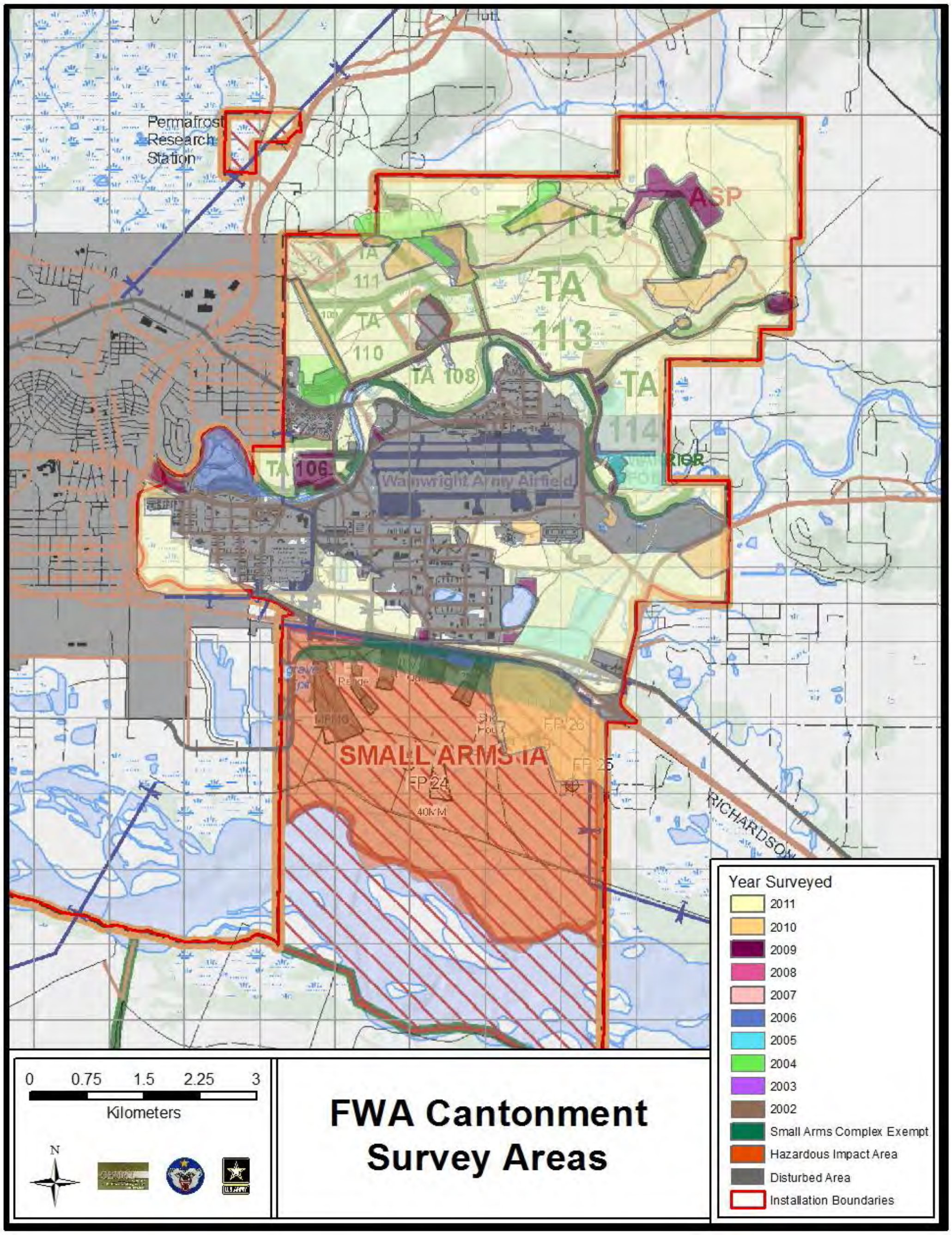

Figure 4. Cantonment surveys by year

2.3 Cantonment Sites

Only 11 archaeological sites are known from the cantonment area (Table 1, Figure 5). Two have been determined ineligible by the SHPO and CEMML. Determinations of Eligibility (DOE) are planned for the remaining nine sites during the 2012 field season.

Table 1. Archaeological sites in the FWA cantonment

#	AHRS #	Period	DOE Status
1	FAI-00040	Prehistoric	Not Evaluated
2	FAI-00041	Prehistoric	Not Evaluated
3	FAI-00042	Prehistoric	Not Evaluated
4	FAI-00043	Prehistoric	Not Evaluated
5	FAI-00199	Prehistoric	Not Evaluated
6	FAI-00200	Prehistoric	Not Evaluated
7	FAI-00509	Prehistoric	Not Evaluated
8	FAI-01603	Historic	Ineligible
9	FAI-01604	Historic	Ineligible
10	FAI-01990	Prehistoric	Not Evaluated
11	FAI-02117	Historic	Not Evaluated

2.3.1 2011 Archaeological Sites

FAI-02117 *(From previous 106 letter- SHPO concurrence 8/30/11)*
Latitude: [redacted]
Longitude: [redacted]
Determination of Eligibility: Not Evaluated

FAI-02117 is located on the FWA cantonment, in Training Area 108, just north of the Chena [redacted] (Figure 6). This site consisted of three different features related to the military or homestead-era history of FWA. Feature 1 is a rectangular depression measuring 220 cm long x 110 cm wide x 40 cm deep (Figure 7). Feature 2 is a sled or other device made from wood, metal, springs, leather cords, and round nails. The feature consists of a rectangular box (250 cm long x 61 cm wide x 28 cm deep) made from 2" and 1 5/8" thick boards (Figure 8). A metal foot-powered steering device is located at one end of the sled. At the opposite end, a curved wood handle is tied onto the frame with leather lashing. The third feature is a closed box structure with a hinged wood door (Figure 9). The box is 135 cm long x 84 cm wide x 82 cm deep. An old fuel can is mounted inside the structure and a stove-pipe with metal flashing was found on top of the box.

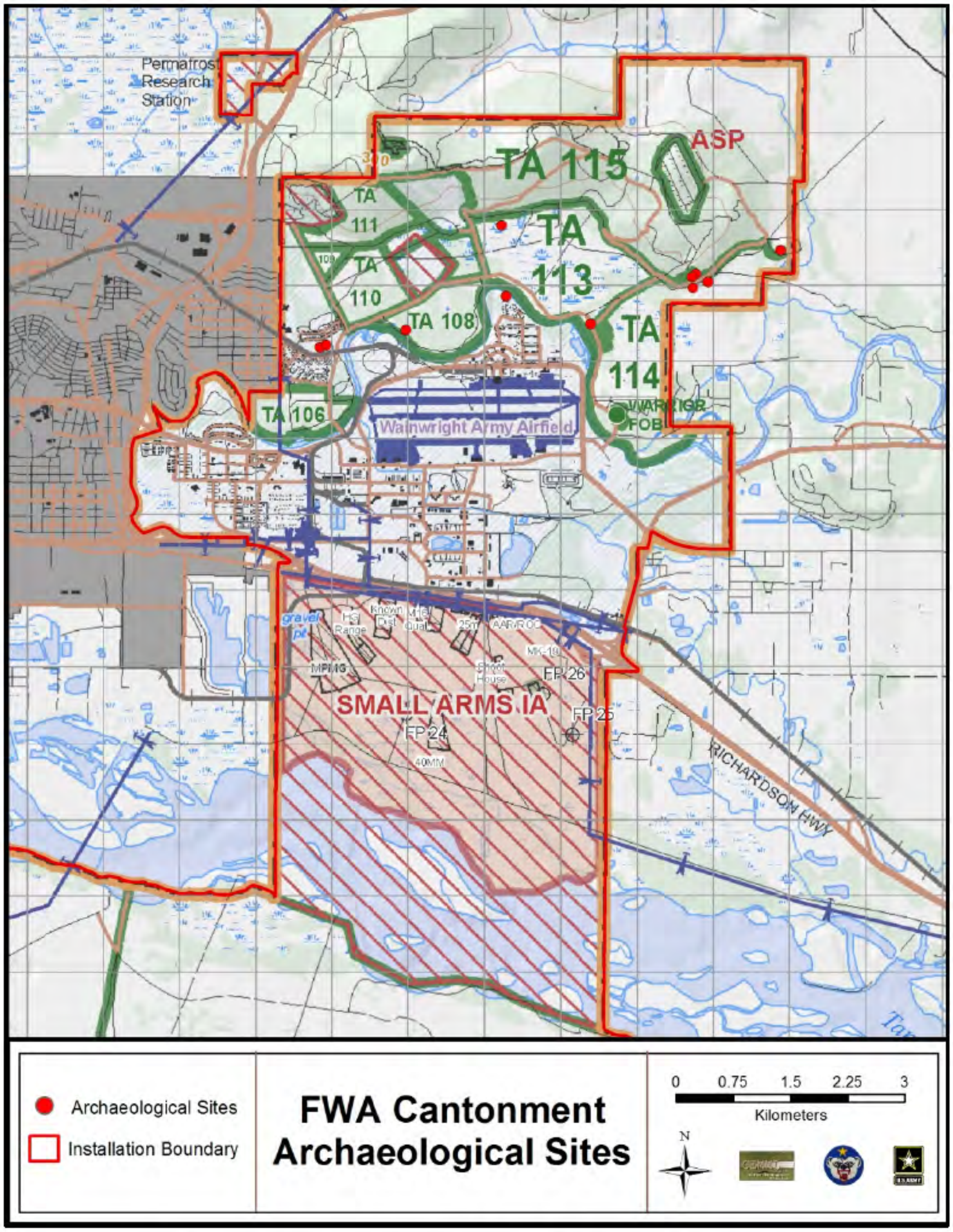

Figure 5. Cantonment archaeological site locations

Figure 6. Map of three historic features found in TA108

Figure 7. Feature 1, rectangular depression

Figure 8. Feature 2, unknown object

Figure 9. Feature 3, box structure

3.0 YUKON TRAINING AREA (YTA)

3.1 Introduction

FWA's YTA (Figure 10) consists of nearly 250,000 acres within the western portion of the Yukon-Tanana Uplands section of the Northern Plateau physiographic province of Interior Alaska (Wahrhaftig 1965). This area is characterized by round, even-topped, north-east to east trending ridges that rise roughly 150 to 450 m above adjacent valley floors to an elevation of 450-915 masl (meters above sea level). Bedrock is primarily composed of Precambrian Birch Creek schist, with few areas of granite and quartz diorite. Most of YTA is covered by a thin (1-200 cm) mantle of micaceous aeolian silt (loess) derived from outwash plains south of the Tanana River (Muhs and Budahn 2006). Soils are typically well-drained brown silt loam associated with poorly-drained silt loams in depressions and drainages (Natural Cooperative Soil Survey 1999).

YTA has four vegetation types: moist tundra, treeless bogs, open low-growing spruce forests, and closed spruce-hardwood forests. The white spruce-paper birch forest of Interior Alaska is often called the boreal forest or taiga. Vegetation types of Interior Alaska form a mosaic and reflect fire history, slope and aspect, and presence or absence of permafrost (Viereck and Little 1972). Forests are dominant diverse ecosystems on YTA. Vegetation ranges from pure stands of spruce or hardwoods to spruce/hardwood mixtures.

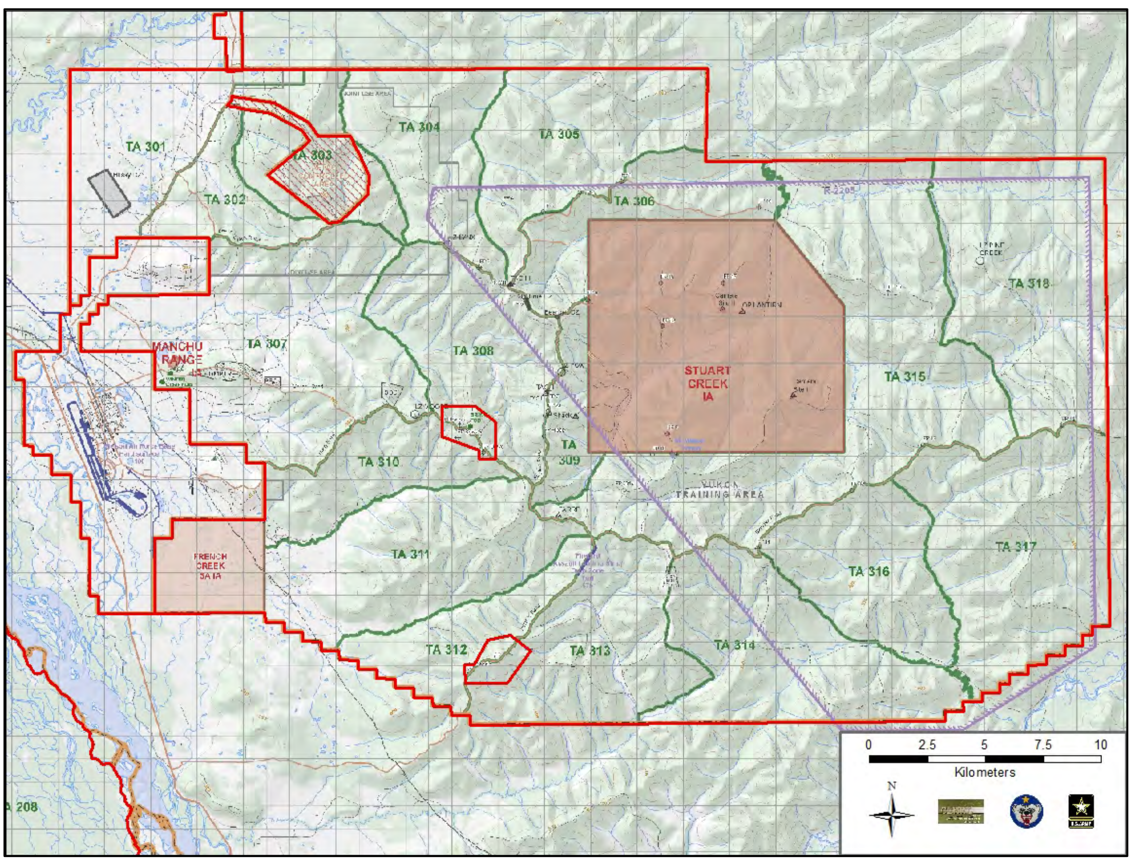

Figure 10. YTA

3.2 YTA Surveys

Archaeological surveys in YTA have generally been guided by Section 106 undertakings. Road and trail maintenance and expansion and the development of timber sales areas were the most common projects in 2010 and 2011. FWA's Range Control has developed areas of potential future development (called PDZs– potential development zones) that have also been surveyed for archaeological resources in advance of any actual undertakings (Figure 11). During the 2010 and 2011 field seasons, survey was completed on four PDZs. Pedestrian surveys at 20 m intervals covered 70 acres of the Johnson Road PDZ, 134 acres of the Grizzly High PDZ, 595 acres of Brigadier Road, and 74 acres of the Skyline Road PDZ. Skyline Road and 20 m on either side of the road has been surveyed in its entirety (Figure 12). In addition, 1 km blocks to the east of Skyline Road were completed in 2006 (Figure 12). Much of Brigadier Road had been previously surveyed, but the firing points and higher potential areas along the road bed were re-examined in 2010. Complete survey coverage of PDZs will help to streamline future military activities in these areas.

The next survey efforts for PDZs will take place during the 2012 field season. Much of the Transmitter Road area is scheduled for survey (Figure 11) and DOEs are planned for all archaeological sites adjacent to the road beds or firing points in YTA (Figure 13).

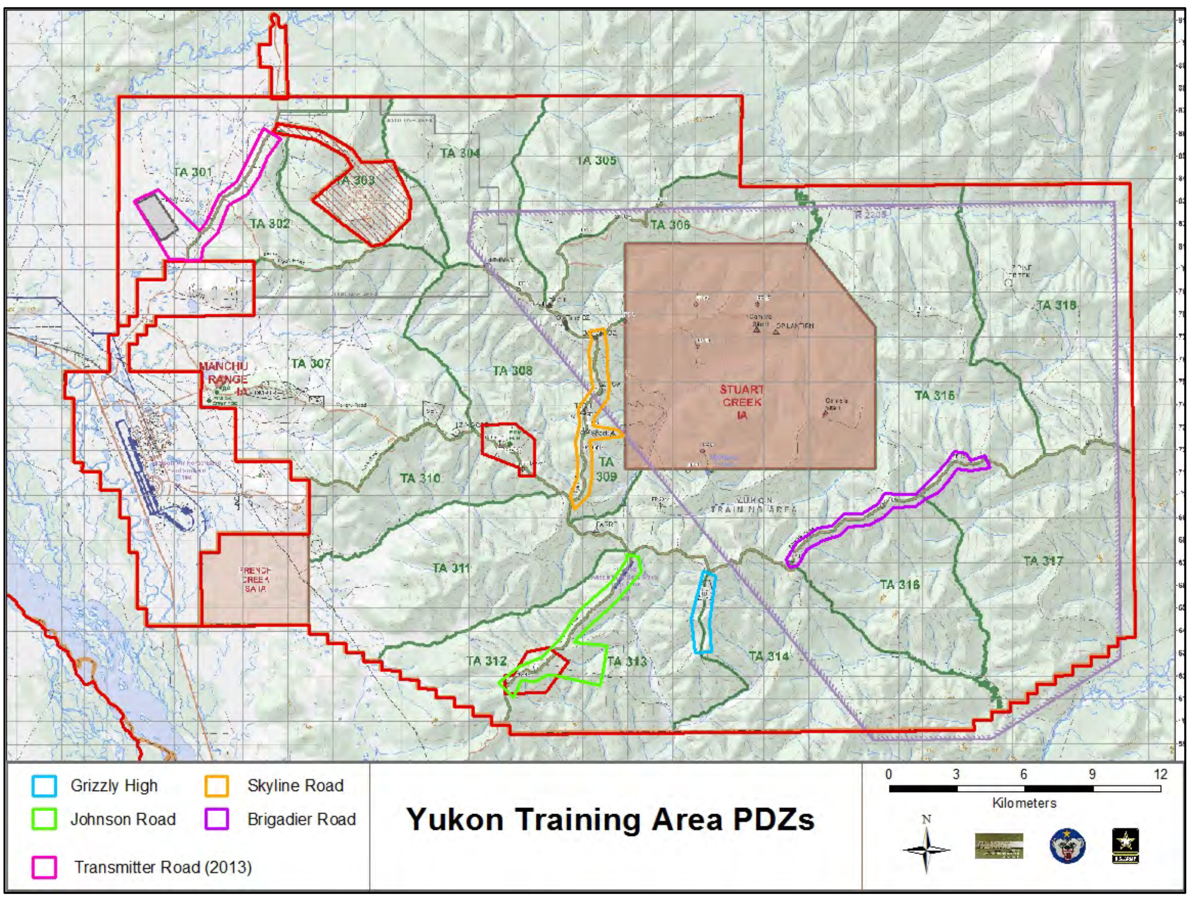

Figure 11. YTA potential development zones

Survey areas for Section 106 undertakings in 2010 and 2011 included North Beaver Creek Road (SHPO letter 5/3/11), Beaver Creek Road to LZ Lynx (SHPO letter 11/2/11), McMahon Trench and Firing Point 2014 (SHPO letter 1/14/10), the borrow pit area at the intersection of Quarry and Skyline roads (SHPO letter 8/30/11), and timber sales areas along Quarry Road, Johnson Road, and Transmitter Road (SHPO letters 8/30/11 and 11/2/11).

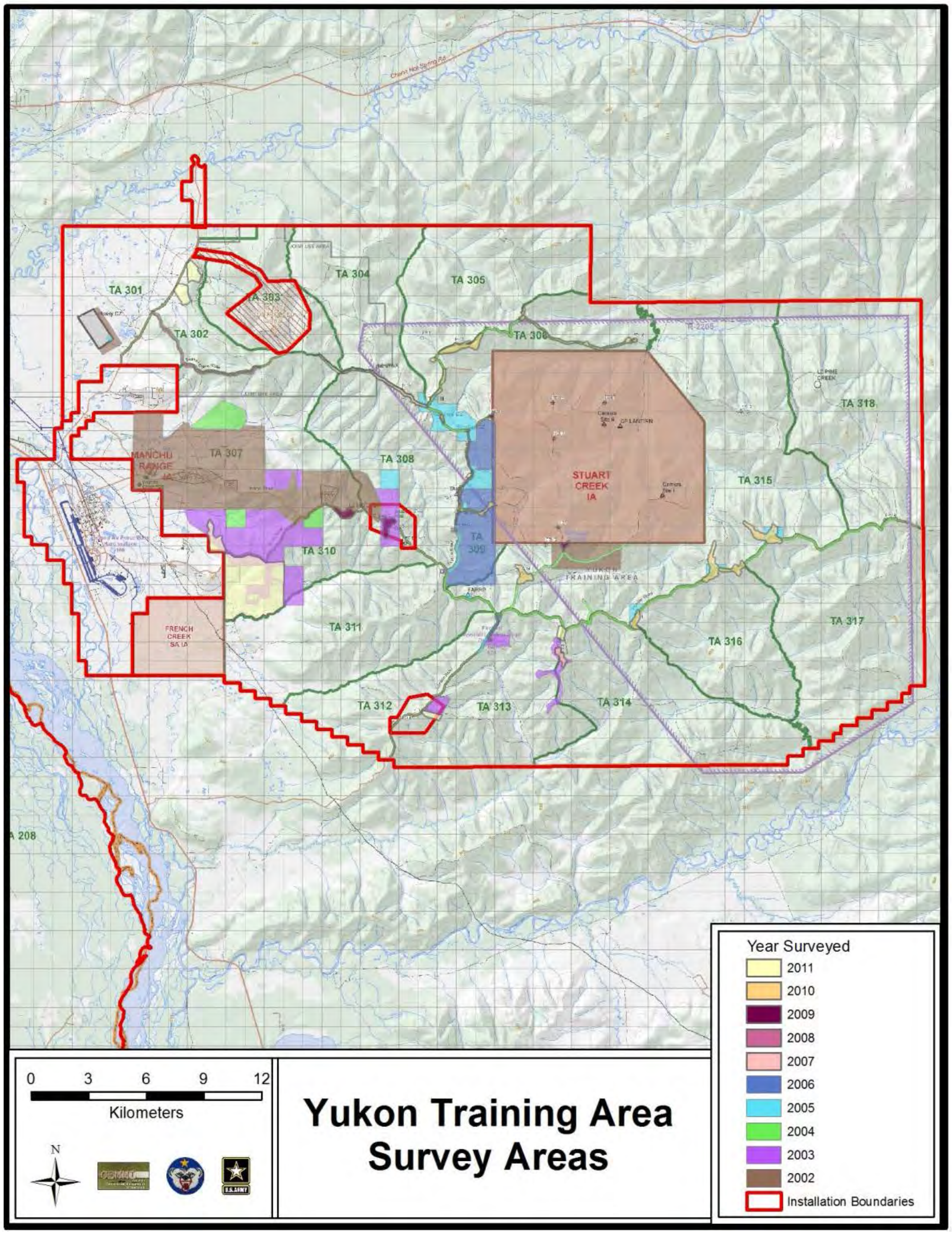

Figure 12. YTA survey areas by year

3.3 YTA Sites

Twenty archaeological sites are known from YTA (Table 2, Figure 13). The vast majority (19) are prehistoric lithic scatters. Ten of these sites have been determined ineligible for the NRHP and the other 10 have yet to be evaluated. Four of these sites were discovered during the 2010 and 2011 field seasons. During the summer of 2010, CEMML archaeologists discovered three sites (XBD-00368, XBD-00369, and XBD-00370) in the North Beaver Creek Road area of YTA (Figure 13). XBD-00368 and XBD-00369 are likely collapsed rockshelter sites that add to the growing body of evidence of this site type in YTA and the surrounding Yukon-Tanana upland (Figure 14). In 2010, one additional site was found at Firing Point Lynx on West Beaver Creek Road (XBD000369). XBD-00369 is an open-air site with lithic debitage buried in an intact stratigraphic sequence.

Table 2. Archaeological sites in YTA

#	AHRS #	Period	DOE Status
1	FAI-00157	Prehistoric	Ineligible
2	FAI-00165	Prehistoric	Not Evaluated
3	FAI-01556	Prehistoric	Not Evaluated
4	XBD-00093	Prehistoric	Ineligible
5	XBD-00094	Prehistoric	Ineligible
6	XBD-00095	Prehistoric	Ineligible
7	XBD-00103	Prehistoric	Ineligible
8	XBD-00104	Prehistoric	Ineligible
9	XBD-00105	Prehistoric	Not Evaluated
10	XBD-00111	Prehistoric	Not Evaluated
11	XBD-00162	Prehistoric	Not Evaluated
12	XBD-00186	Historic	Ineligible
13	XBD-00260	Prehistoric	Ineligible
14	XBD-00264	Prehistoric	Ineligible
15	XBD-00266	Prehistoric	Ineligible
16	XBD-00364	Prehistoric	Not Evaluated
17	XBD-00368	Prehistoric	Not Evaluated
18	XBD-00369	Prehistoric	Not Evaluated
19	XBD-00370	Prehistoric	Not Evaluated
20	XBD-00387	Prehistoric	Not Evaluated

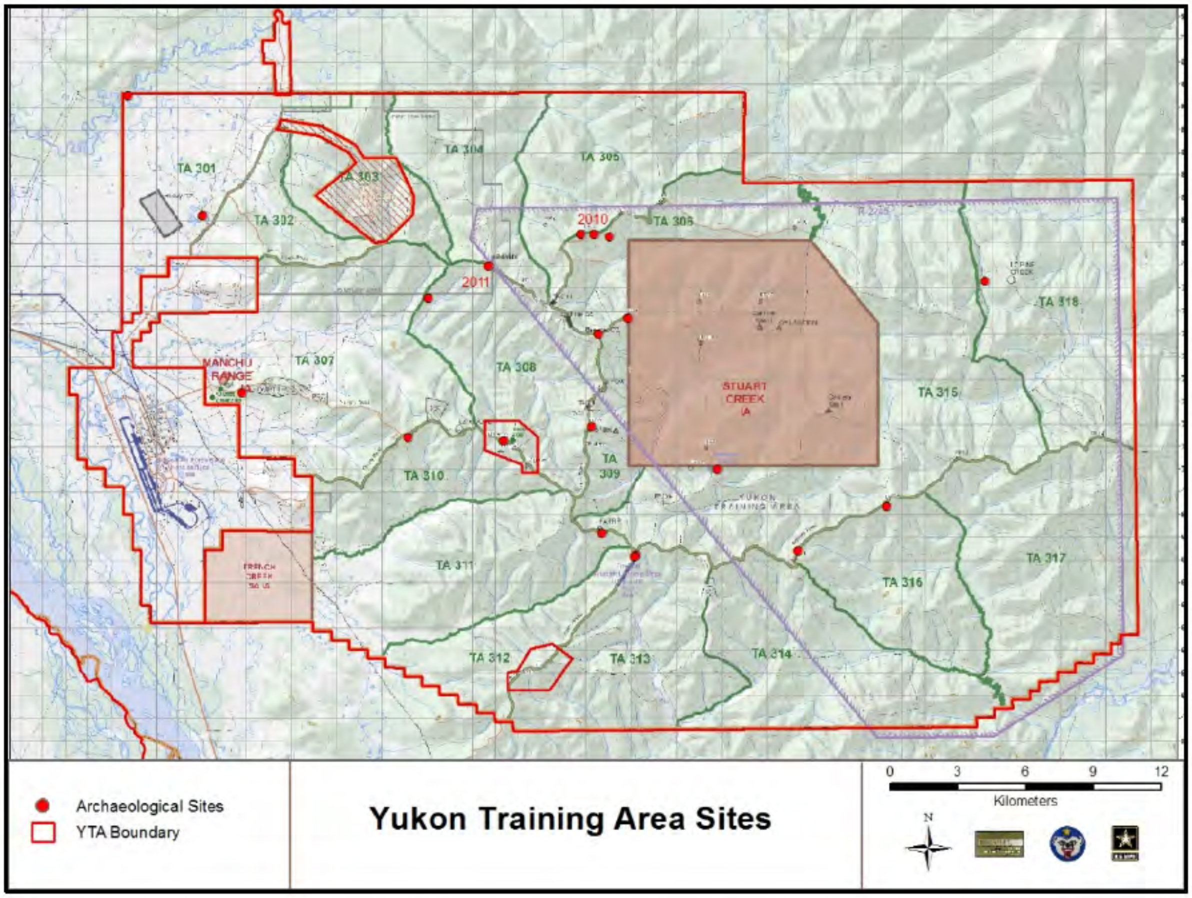

Figure 13. Location of sites within YTA

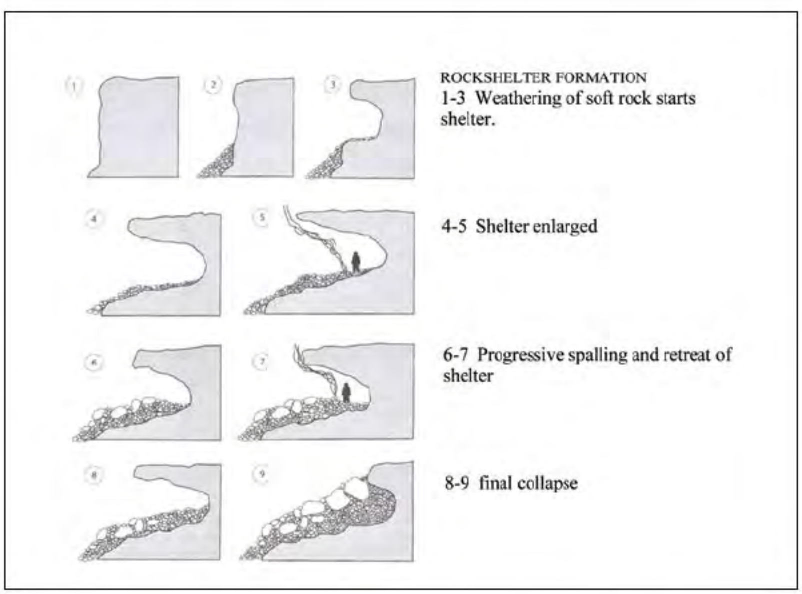

Figure 14. Geologic evolution of rockshelters

3.3.1 2010 Archaeological Sites

XBD-00368 *(From previous 106 letter- SHPO concurrence 5/3/11)*
Latitude: [redacted]
Longitude: [redacted]
Determination of Eligibility: Not Evaluated

Site XBD-00368 is located near the southern base of a large hill on the north side of North Beaver Creek Road, at UTM coordinates [redacted] (Figure 15, 16). Site elevation is 663 masl. The general site area is approximately two meters above North Beaver Creek Road (Figure 17). The site boundaries are fairly restricted by an abandoned two-track 2-3 m northeast of the site, push piles 3-5 m west and southwest of the site, and North Beaver Creek Road, 4 m south of the site datum. North of the site, the terrain begins to climb at a 20-30° slope to the crest of the hill, approximately 50 m above the site. South of North Beaver Creek Road, the terrain drops sharply (25-35°) to the valley below. The nearest water source is a branch of Moose Creek, approximately 2.5 km south of the site. A branch of Hunts Creek is located approximately 2.5 km north of the site. The location is south-facing with a limited viewshed due to topography and vegetation.

The ecosystem is characterized by upland moist mixed needleleaf/broadleaf forest. Site vegetation includes spruce, birch, aspen, alder, willow, low scrub, mosses, and lichen. Surface exposure was generally 0-5%, higher in disturbed areas (push piles, etc.) in the vicinity.

The site is situated at the base a schist/quartz rock outcrop that rises approximately two meters above the surrounding ground surface (Figure 17). It is possible, if not likely, that the site represents the remains of a collapsed rockshelter that evolved in a scenario similar to that illustrated in Figure 14.

Site XBD-00368 was identified through subsurface testing. Cultural material was recovered from one of two test pits, which yielded a single dark gray (5Y 4/1) chert broken flake (UA2010-239), size class 10-20 mm at 25-35 cm BS. No tools were recovered from the site.

Site stratigraphy consists of aeolian silts containing a high concentration of schist pebbles, gravels, cobbles, and flagstones, at least 50 cm thick, overlying decomposing schist bedrock extending to at least 80 cm BS (Figure 18, Figure 19).

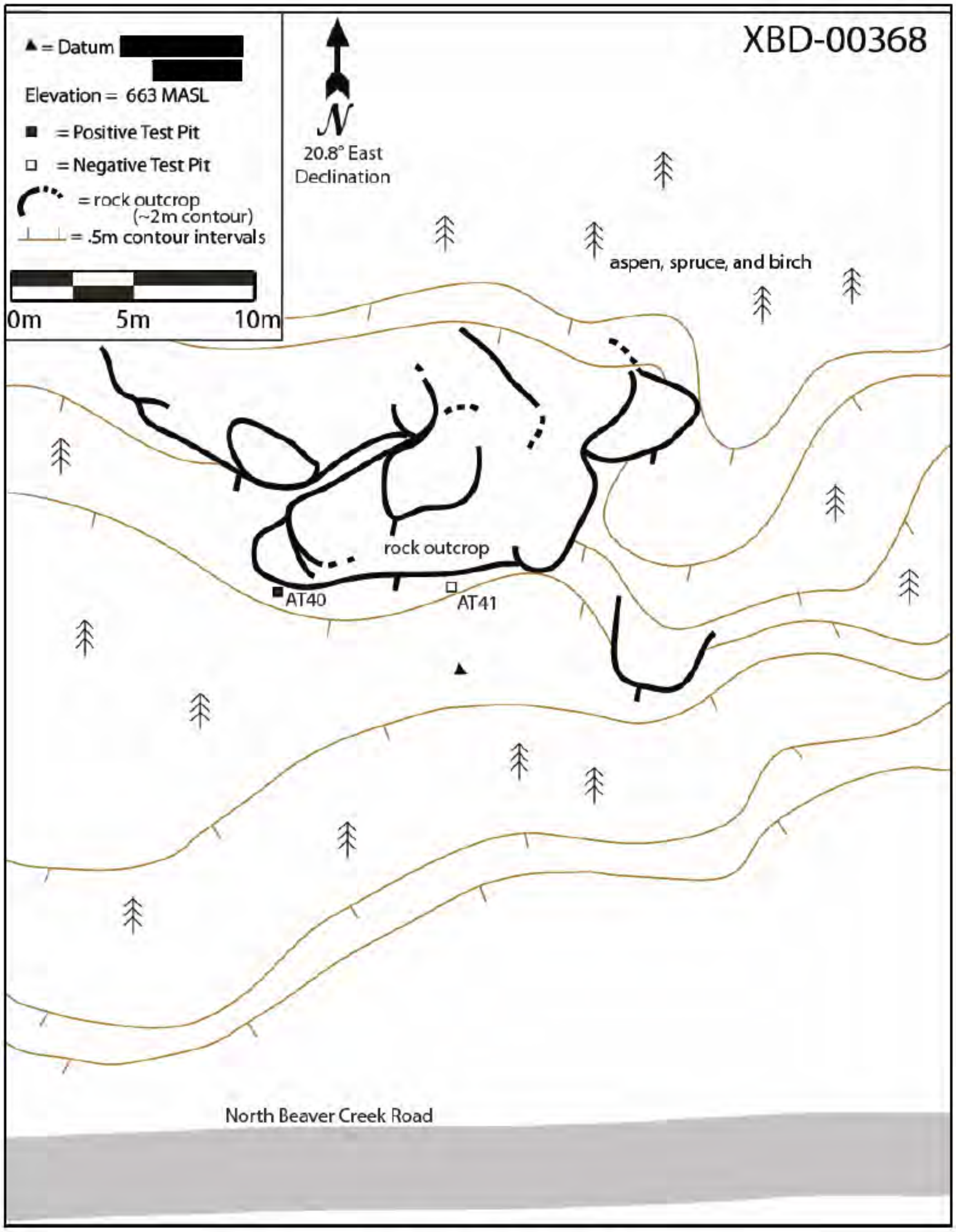

Figure 15. XBD-00368 sketch map

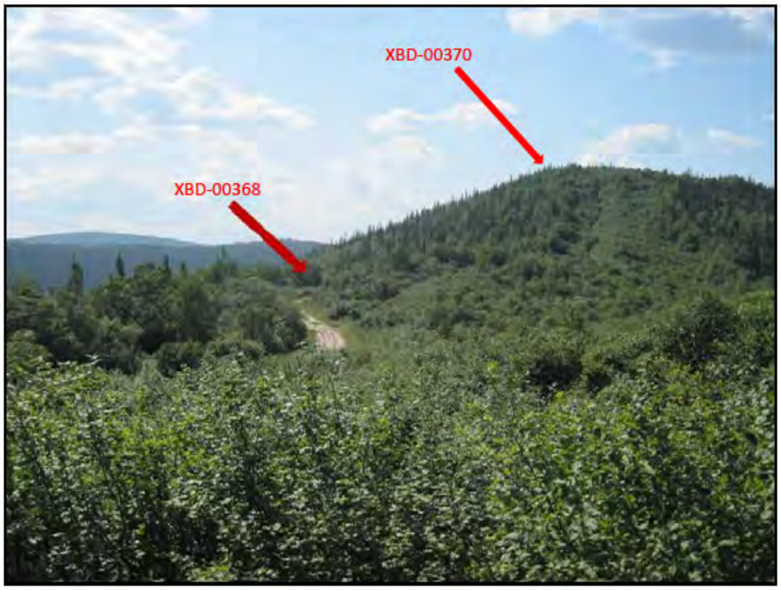

Figure 16. XBD-00368 overview (view to southwest)

Figure 17. XBD-00368 overview (view to north)

Figure 18. XBD-00368 test pit stratigraphy

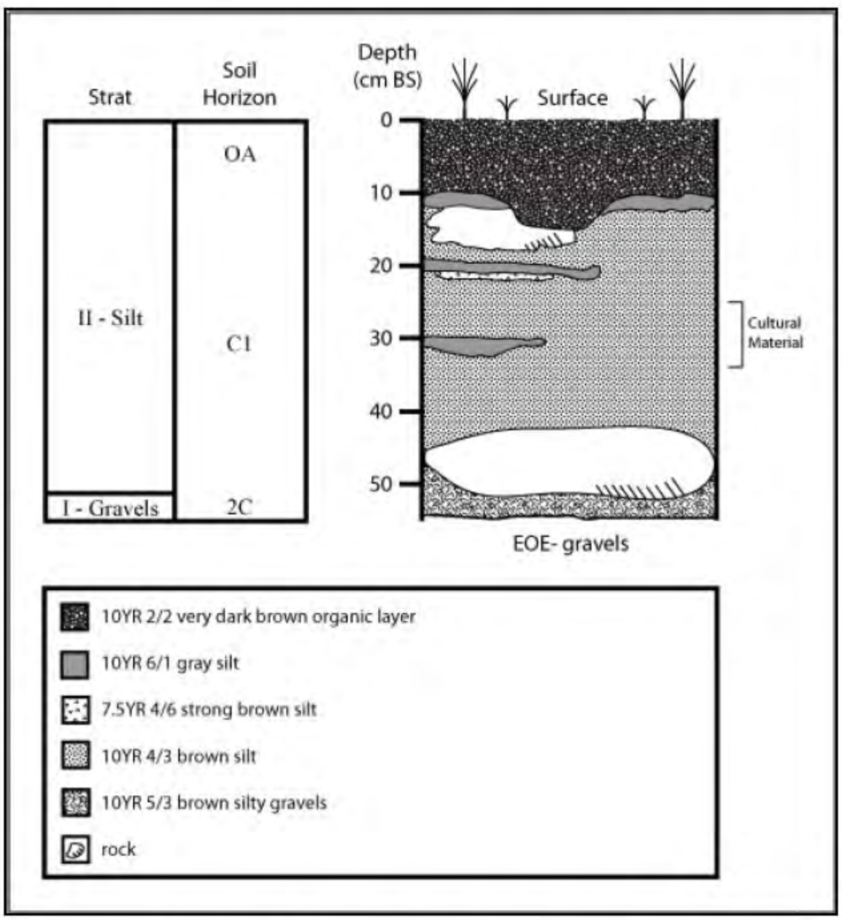

Figure 19. XBD-00368 stratigraphy

XBD-00369
Latitude: [redacted]
Longitude: [redacted]
Determination of Eligibility: Not Evaluated

Site XBD-00369 is located on the southern slope of Brigadier Road North in YTA. UTM coordinates are [redacted]. Site elevation is 755 masl. The site is situated on a narrow knoll, which has steep (25°) slopes to the south and west and remains fairly level (8-10°) to the north and east (Figure 20, Figure 21). Brigadier Road is approximately 150 m to the north of XBD-00369. The site is estimated at approximately 20 m east–west and 10 m north–south. The nearest water source is an unnamed drainage creek 1 km to the west, which is not visible from the site.

The location would offer approximately a 180° view; however, vegetation in the form of upland moist mixed broadleaf/needleleaf forest obscures the view. The vegetation is comprised of spruce, birch, willow, lichen, and moss. The vegetation surrounding the estimated site area is denser than the vegetation covering the immediate site area and is primarily black spruce and moss. No surface exposure exists due to lichen and moss cover.

Site XBD-00369 was identified through subsurface testing. Two 50 cm x 50 cm test pits were excavated, one of which contained cultural material. One translucent white and black (5Y 8/1 with 2.5/N) 10-20 mm broken chert flake (UA2010-240) was collected at 30-40 cm BS.

Site stratigraphy consists of aeolian silts 19-39 cm thick unconformably overlying aeolian silts/decaying schist bedrock (Figure 22, Figure 23).

Figure 20. XBD-00369 overview (view to northeast)

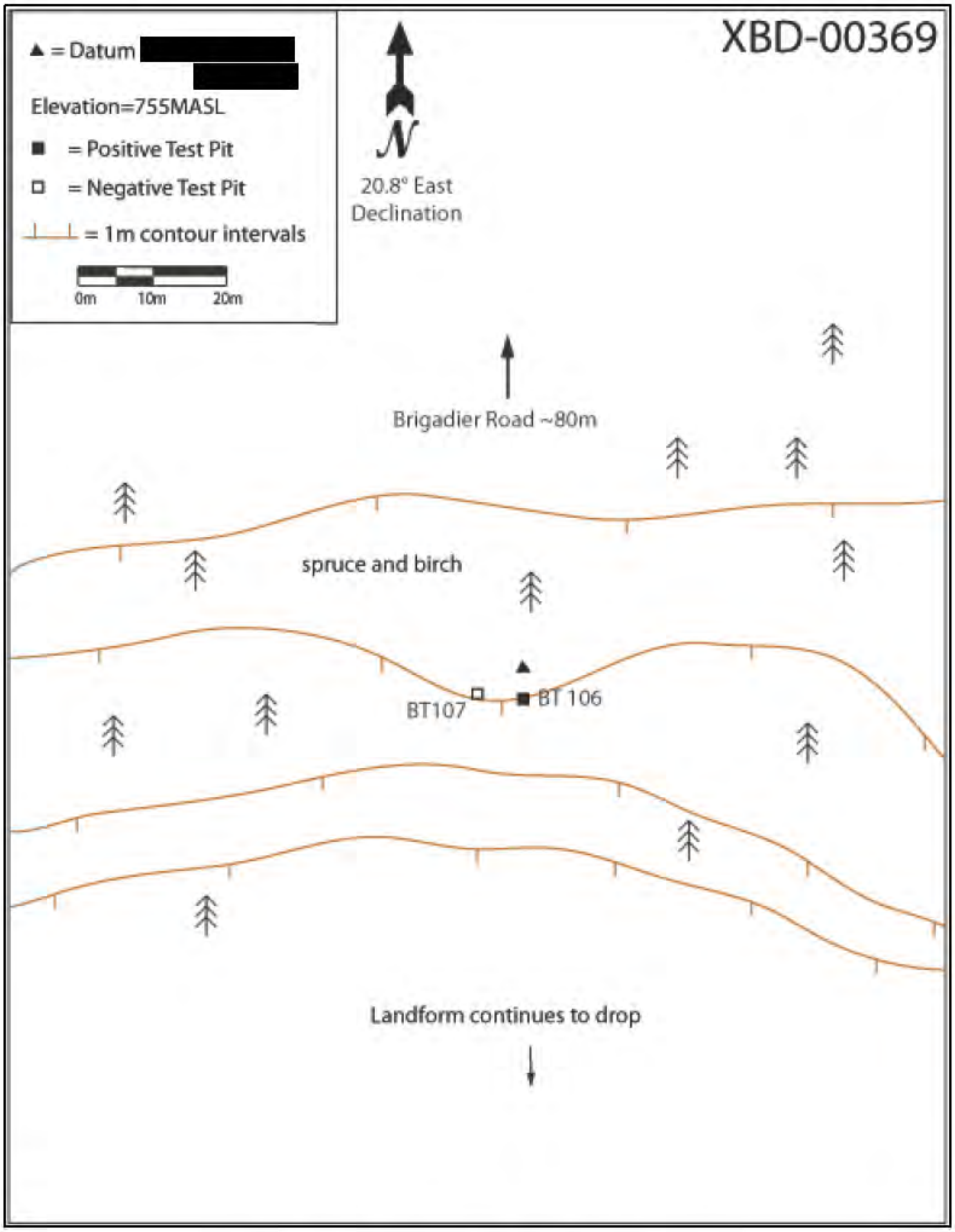

Figure 21. XBD-00369 sketch map

Figure 22. XBD-00369 test pit stratigraphy

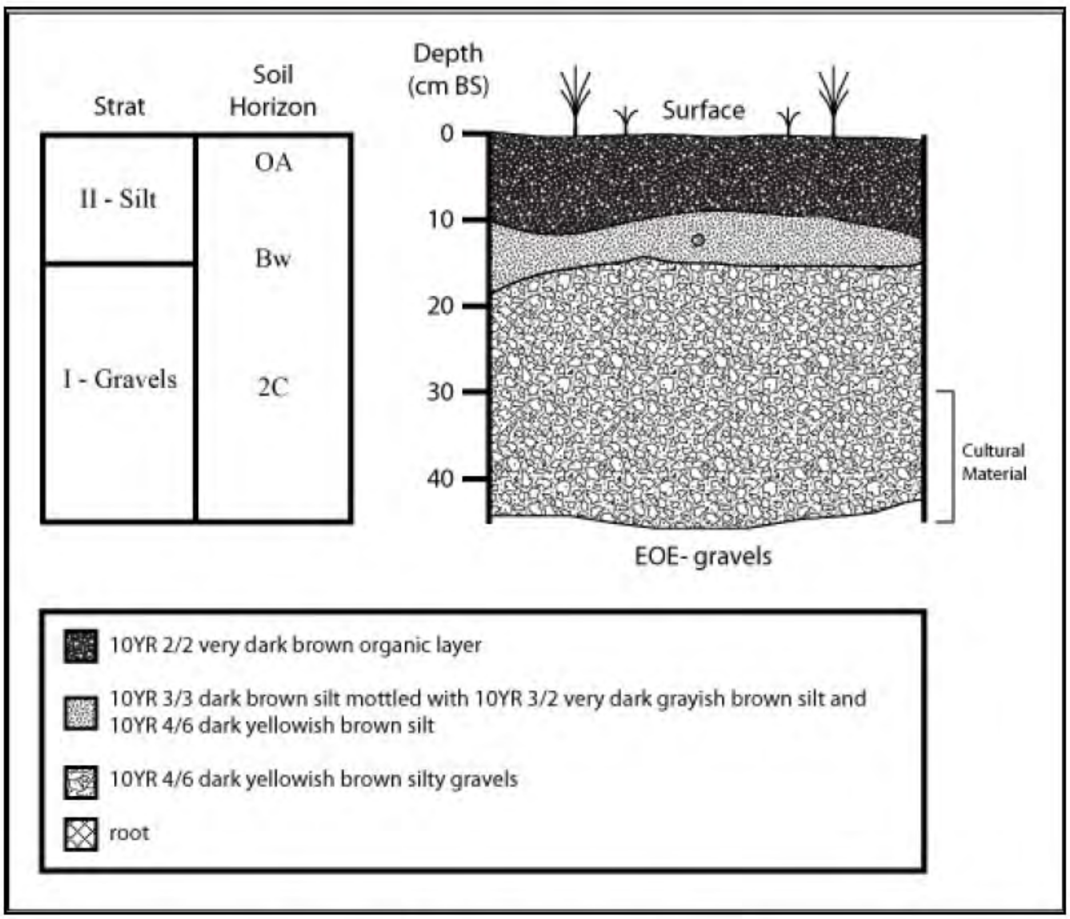

Figure 23. XBD-00369 stratigraphy

XBD-00370 *(From previous 106 letter- SHPO concurrence 5/3/11)*
Latitude: [redacted]
Longitude: [redacted]
Determination of Eligibility: Not Evaluated

Site XBD-00370 is located near the crest of a large hill north of North Beaver Creek Road at UTM coordinates [redacted]. Site elevation is 712 masl. The site is situated at the base of a schist/quartz rock outcrop near the western crest terminus, 15 m south of a gravel two-track that splits off North Beaver Creek Road and bisects the hill west-east (Figure 24, Figure 25). The site occupies a fairly level bench in surrounding terrain that slopes sharply (15-35°) down to North Beaver Creek Road. North of the site, the terrain climbs briefly to the crest of the hill before dropping down to the Hunts Creek drainage at a 20-35° slope. Hunts Creek is approximately 1 km east of the site, is seasonally wet, and is the closest source of water. The site location provides a good viewshed to the south, despite being partially obstructed by trees.

The ecosystem is characterized by upland moist mixed needleleaf/broadleaf forest. Site vegetation includes spruce, birch, aspen, alder, willow, low scrub, and a dense moss and lichen ground cover. Surface exposure is 0%.

Site XBD-00370 was identified through subsurface testing. Cultural material was recovered from one of two 50 cm x 50 cm test pits, which yielded a single black (2.5/N) chert broken flake (UA2010-241), size class 5-7.5 mm at 0-10 cm BS. No tools were recovered from the site.

The site is situated at the base of a schist/quartz rock outcrop that rises approximately two meters above the surrounding ground surface (Figure 26). It is possible, if not likely, that the site represents the remains of a collapsed rockshelter that evolved in a scenario similar to that illustrated in Figure 14.

Site stratigraphy consists of aeolian silts containing a high concentration of schist pebbles, gravels, cobbles, and flagstones at least 50 cm thick overlying poorly sorted gravels extending to at least 80 cm BS (Figure 27, Figure 28).

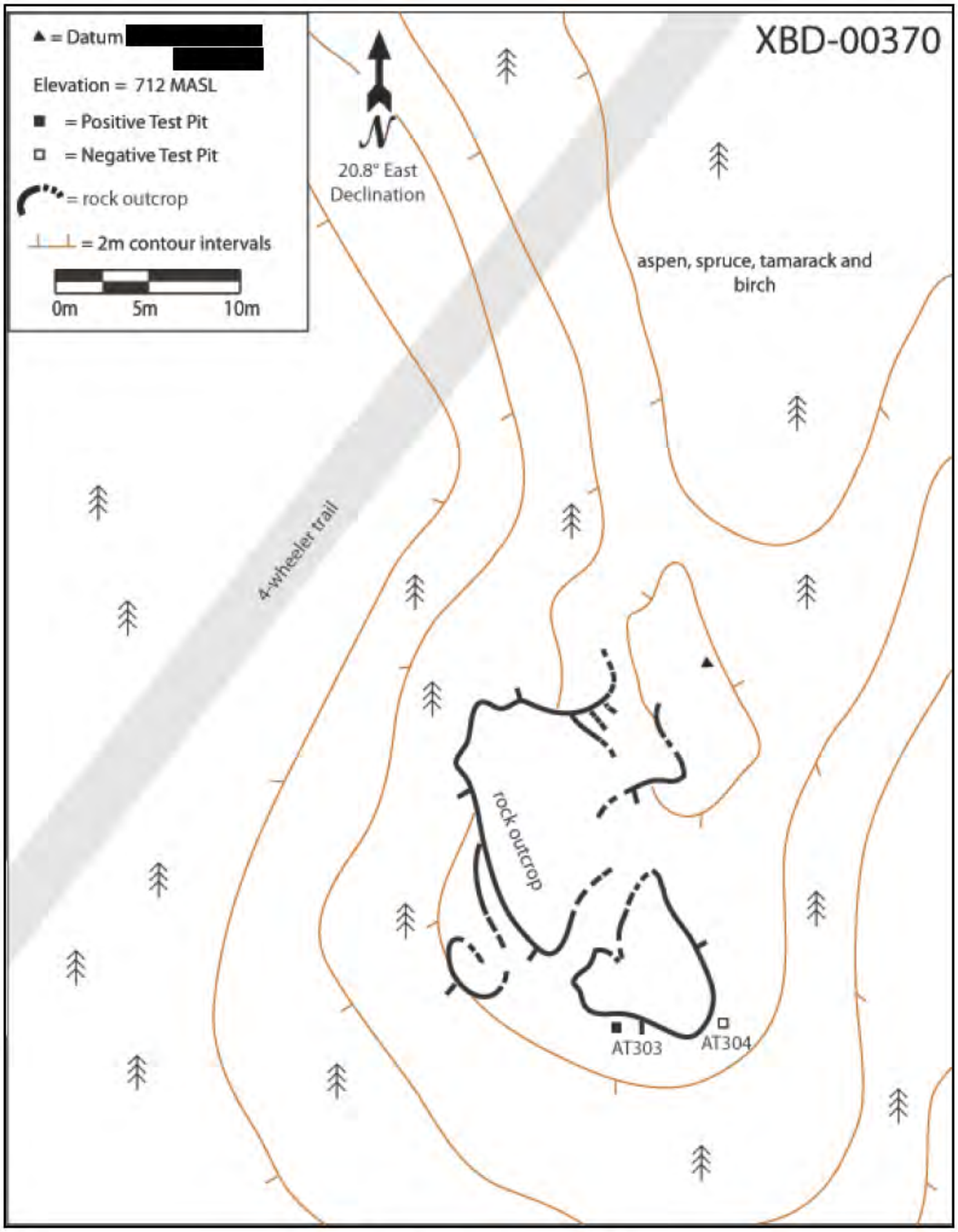

Figure 24. XBD-00370 sketch map

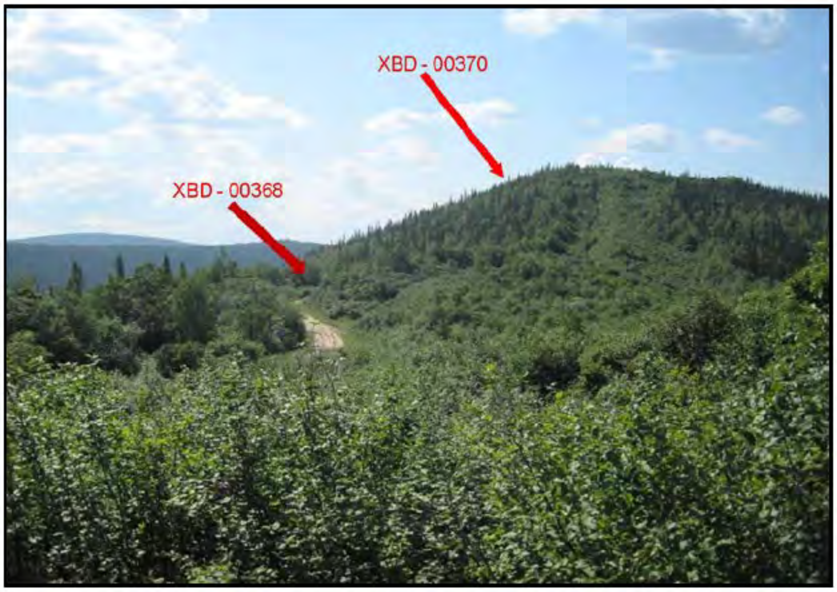

Figure 25. XBD-00370 overview (view to southwest)

Figure 26. XBD-00370 overview (view to north)

Figure 27. XBD-00370 test pit stratigraphy

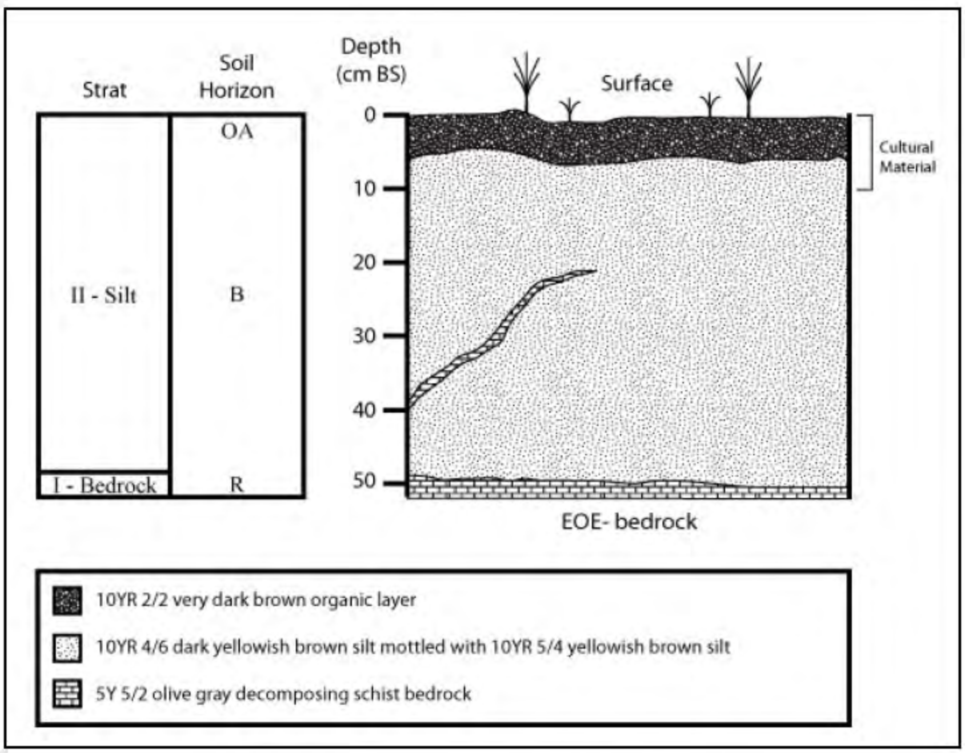

Figure 28. XBD-00370 stratigraphy

3.3.2 2011 Archaeological Sites

XBD-00387 *(From previous 106 letter- SHPO concurrence 11/22/11)*
Latitude: [redacted]
Longitude: [redacted]
Determination of Eligibility: Not Evaluated

This site is located on a 2 m high rise north of Beaver Creek Road (Figure 29).

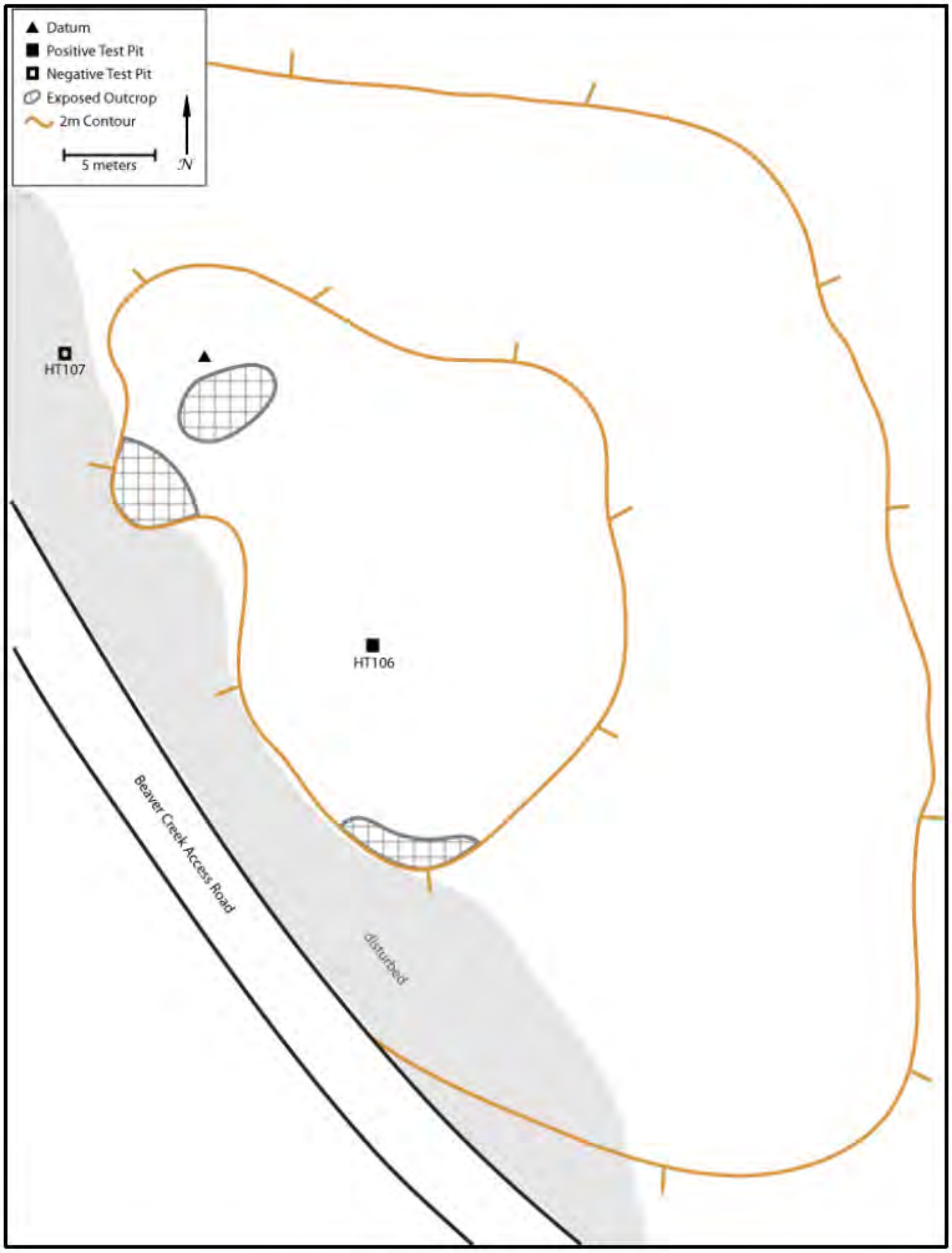

Figure 29. Map of XBD-00387

UTM coordinates are [redacted]. Spruce and aspen trees, alder shrubs, and willow shrubs composed the main site vegetation (Figure 30). The viewshed from the test pit location was 360°. Loess lies above shallow schist bedrock (test pit excavated to 33 cm below surface) (Figure 31, Figure 32). Five chert flakes (UA2011-433) were found in the root mat (0-7 cm below surface) of a single test pit adjacent to a modern fire pit. The flakes were made from black and gray chert and all consistent with late stage bifacial thinning and bifacial pressure flaking. Other test pits on the same landform were negative for cultural resources and showed significant ground disturbance (Figure 33).

Figure 30. Vegetation in APE and view from site at LZ Lynx

Figure 31. Test pit HT106 where chert flakes were found

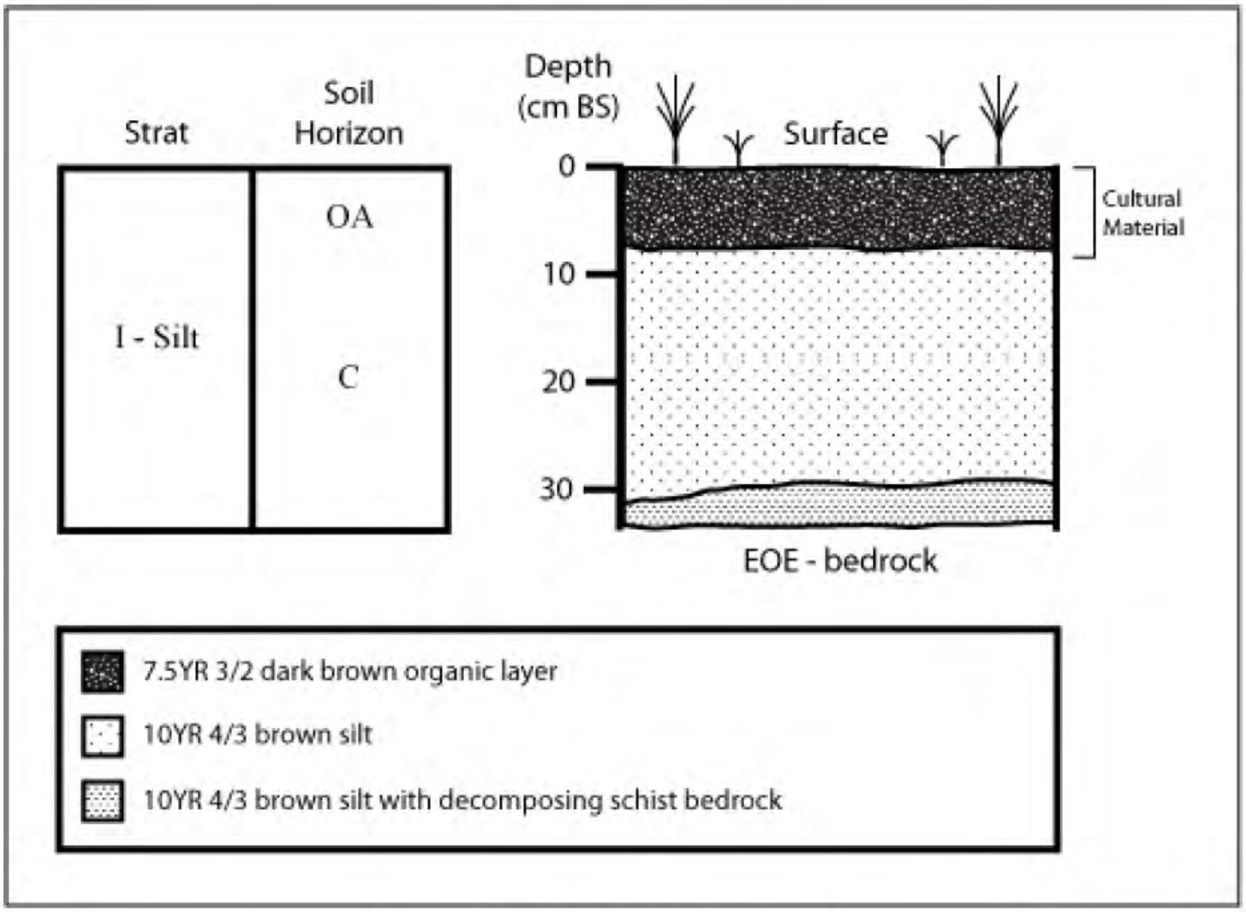

Figure 32. XBD-00387 stratigraphy

Figure 33. Disturbed ground at FP 5

4.0 TANANA FLATS TRAINING AREA (TFTA)

4.1 Introduction

TFTA encompasses 654,000 acres, located to the south and west of the Tanana River (Figure 34). Extending 32 miles south of Fairbanks, it occupies the majority of the land between the Wood and Tanana rivers. The area is located in the Tanana-Kuskokwim lowlands (Wahrhaftig 1965) and is characterized by several topographically high features on the landscape: Clear Creek Buttes; Wood River Buttes; and the highlands surrounding Blair Lakes, which contain the highest point in the flats– a hill that rises to an elevation of 426 masl. The flats were formed by the northern migration of the Tanana River in response to uplift and orogeny associated with the Alaska Range to the south. The majority of the area is composed of recent deposits and alluvium. Higher landforms such as Wood River Buttes, Clear Creek Buttes, and the Blair Lakes hills are bedrock knolls capped by a thin mantle of aeolian silt (loess).

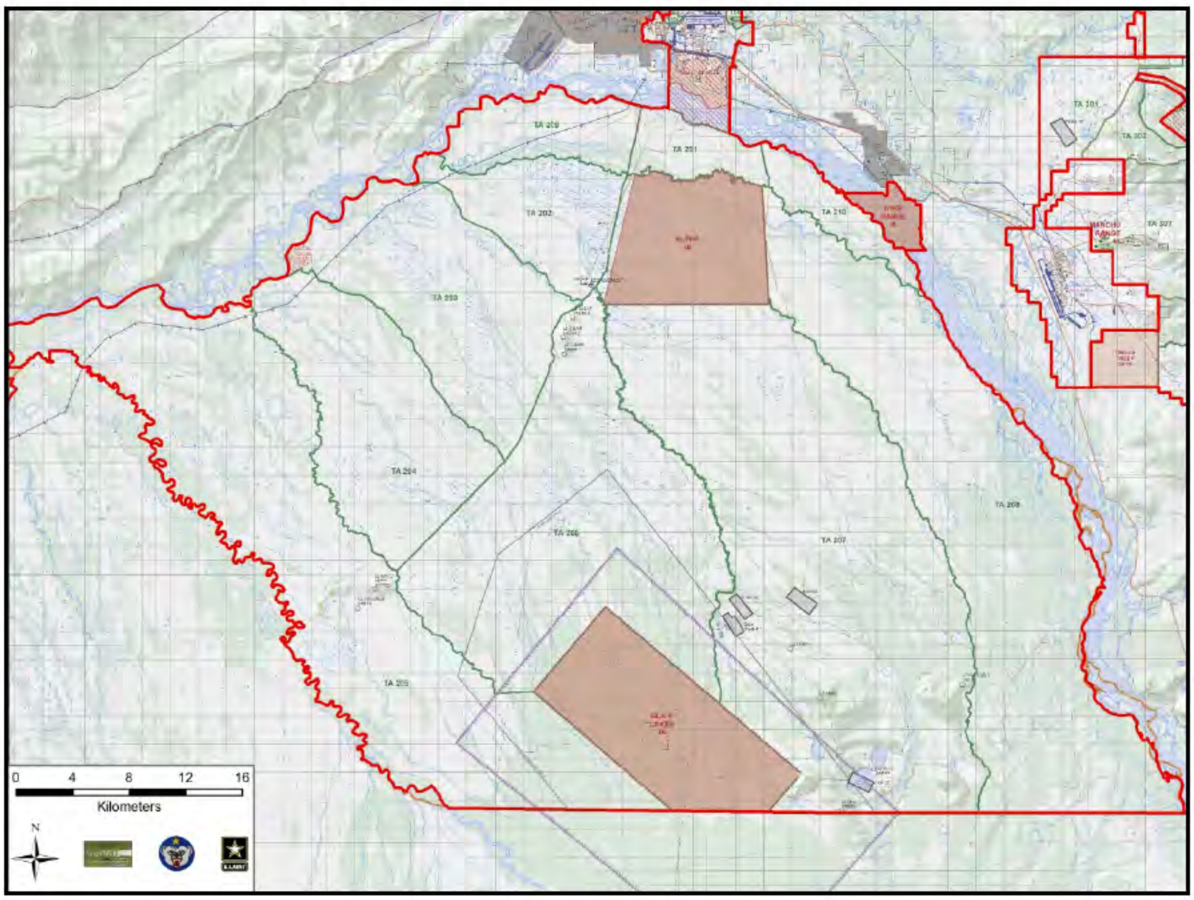

Figure 34. TFTA

TFTA encompasses a large area and a wide array of physiographic features. The area contains three main vegetation types: treeless bogs, open low-growing spruce forests, and closed spruce-hardwood forests. Forests in the Tanana Flats include black spruce in low, poorly-drained areas and spruce and mixed hardwood (poplar, birch, and aspen) in upland areas. Lowlands are mainly covered with herbaceous marsh and shrub wetlands.

4.2 TFTA Surveys

Although portions of TFTA have been surveyed for archaeological sites since the 1970s (Clear Creek Buttes, Wood River Buttes, Blair Lakes), systematic surveys in the training area didn't begin until 2008 (Figure 35).

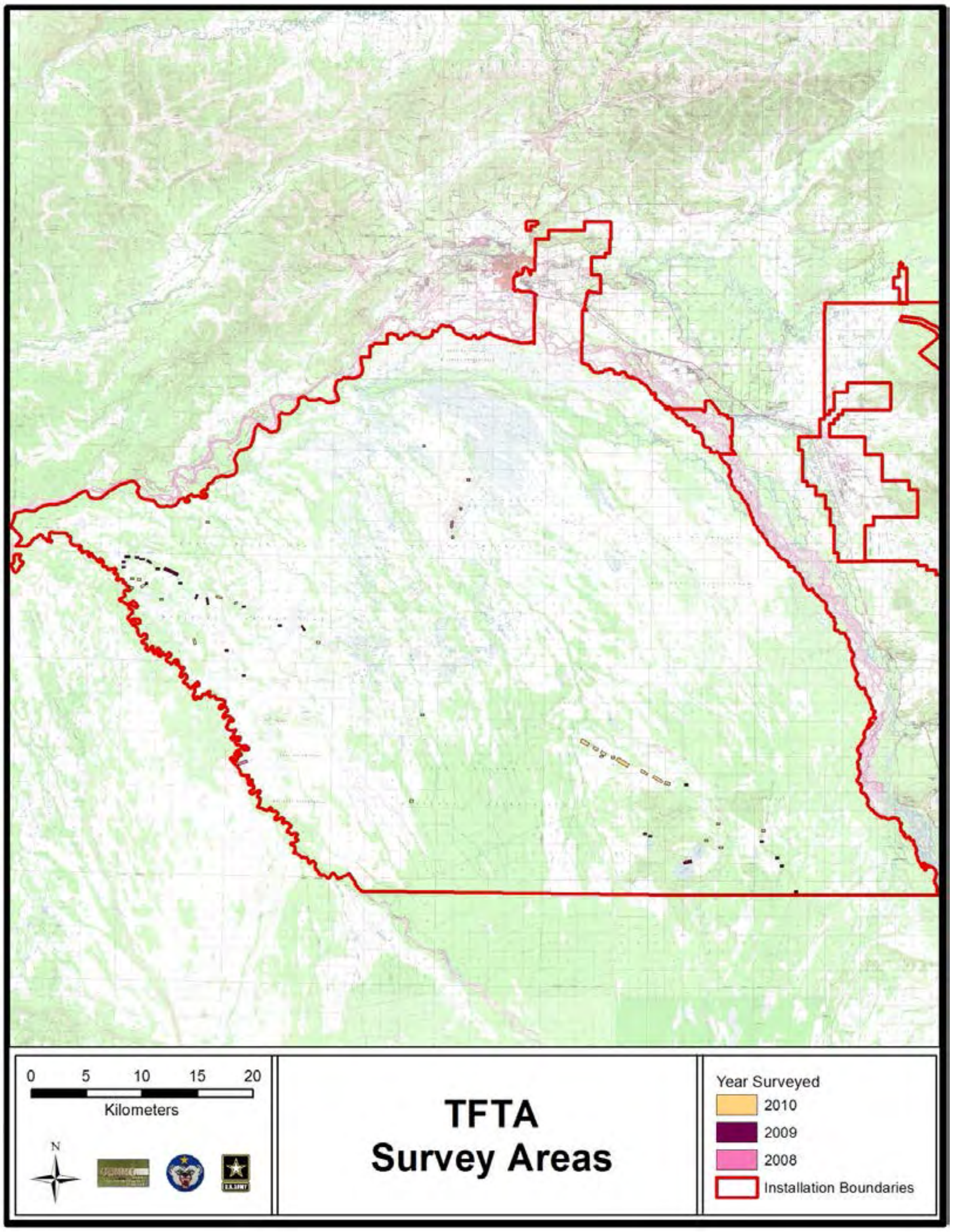

Figure 35. TFTA survey areas by year

During the summer of 2010, Colorado State University's CEMML archaeologists continued a judgmental survey from 2008 and 2009 (Gaines 2009; Gaines et al. 2010) of three main physiographic regions of TFTA: (1) a vegetated dune field east of the Wood River, (2) low bedrock knolls north of Clear Creek, and (3) an alluvial terrace and uplands in the vicinity of Blair Lakes (Figure 36). No surveys of TFTA took place during the 2011 field season.

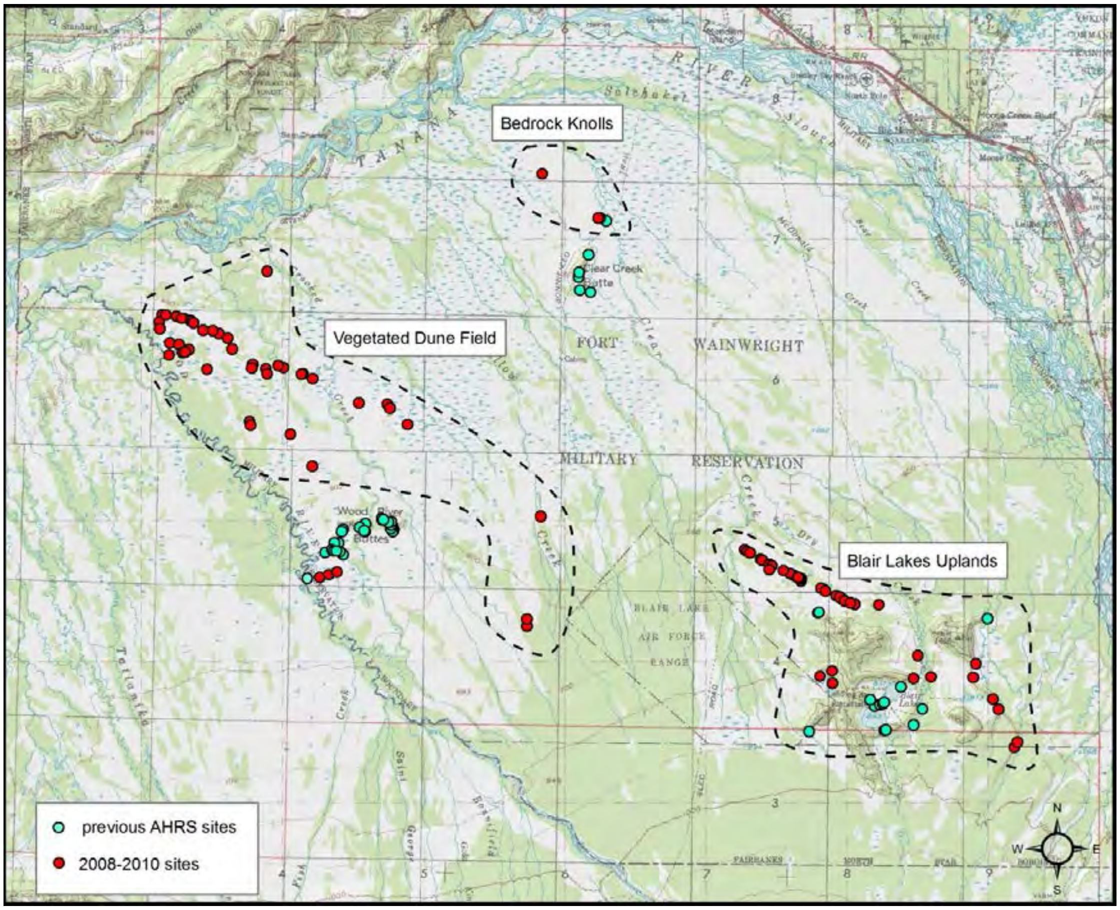

Figure 36. TFTA physiographic regions surveyed during 2010

4.2.1 Blair Lakes Vicinity: Alluvial Terrace Edge and Uplands

The Blair Lakes and surrounding hills are located in the southeastern portion of TFTA, immediately west of the Tanana River. The Blair Lakes consist of Blair Lake North (266 acres), Blair Lake South (557 acres), Pork Chop Lake (118 acres), and Anne Lake (255 acres). Lake formation occurred during the late Pleistocene as a result either of rapid aggradation of Dry Creek, tectonic faulting, or a combination of the two. Elevated beach ridges on the east shore of Blair Lake North indicate higher lake levels during the terminal Pleistocene or early Holocene and, on the basis of their elevation, indicate that the two lakes would have been connected during this time (Dixon et al. 1980).

Select areas in the Blair Lakes vicinity were targeted for archaeological survey during 2010 as part of long-range planning related to possible range developments in TFTA. Fieldwork was conducted by a team of seven CEMML archaeologists under the supervision of Edmund Gaines, M.A., R.P.A. during July and August 2010. Field methods consisted of rotary wing and fixed wing aerial reconnaissance to select high-probability locations for ground survey and testing. Ground survey consisted of visual surface inspection, and subsurface testing consisted of 50 x 50 cm shovel tests screened through ¼” mesh.

The 2010 survey area can be roughly divided into two general landforms: (1) an alluvial terrace, and (2) the Dry Creek drainage and adjacent knoll. A prominent terrace edge punctuates the landscape north and east of the Blair Lakes. It is comprised of alluvial deposits (Péwé et al. 1966) that create a roughly north/south to southeast/northwest trending bench that rises 15-25 m above the abandoned Tanana River floodplain alluvium below. An unnamed hill northeast of Blair Lakes punctuates the terrace edge. At this higher landform, the terrace turns and extends at a roughly NW direction for roughly 15 km before it gradually subsides to the flats below. The eastern portion of the terrace was targeted as high-probability area for ground survey during 2009 identifying four prehistoric archaeological sites (Gaines et al. 2010). These efforts continued north and northwest during 2010. Survey efforts focused on 38 high-potential areas along the northwestern terrace edge, resulting in the identification of 33 prehistoric archaeological sites. All but two of these were found through subsurface testing. Additional efforts were focused on the Dry Creek alluvial system and an adjacent low hill, just north of Blair Lake North. Occupying an area of roughly 31 km², the hills and ridges surrounding Blair Lake are composed of metamorphic rocks, primarily Birch Creek schist. These uplands rise from the surrounding outwash terrace and contain the highest point in TFTA – an unnamed hill that rises to an elevation of 426 masl. Dry Creek is an ephemeral stream with several low gravel terraces and low knobs overlooking the channel. The hill north of Blair Lake South is composed of schist bedrock capped by a mantle of aeolian silt. Six high-probability areas were targeted for ground survey during 2010 in this area, resulting in the identification of three prehistoric archaeological sites.

4.2.2 Dune Field

The northwestern portion of TFTA contains a 45 km²/19,255-acre, discontinuous vegetated sand dune field that occupies a triangular area east of the lower Wood River, south of the Tanana River and north of the Wood River Buttes (Figure 37). Topographically, the dune field is dominated by a northeast-southwest trending linear dune complex that extends roughly 5 km, is 200-800 m in width, and rises as high as 45 m above the surrounding flats. This represents the most obvious dune feature and has received the most attention from the limited research in the area (e.g., Dixon et al. 1980: 215). This feature and a few of the larger dunes to the south and west appear on USGS geologic and topographic maps of the area (Péwé et al. 1966; Figure 38). Low-speed, low-elevation overflights of the area conducted by CEMML during 2009 and 2010 revealed the presence of several dozen additional linear, parabolic, and ovate sand dunes diffusely spread over a 40 km2/16,900 acre area to the south and west of the linear dune complex. In many places the dunes surround undrained depressions, old ponds, and relict stream channels.

Geologically, the dune field remains relatively unstudied, and there is much to learn in terms of dune morphology, timing of and paleoenvironmental factors influencing dune formation and stabilization. The existing literature (e.g., Péwé 1975; Péwé et al. 1966; Hopkins 1982; Lea and Waythomas 1990) tends to associate this dune field with the extensive Nenana Dune field located more than 35 km to the west (Collins 1985). The dunes were probably formed from sands derived from the Tanana River during full to late glacial times. Some researchers (e.g., Lea and Waythomas 1990) hypothesize late glacial to early Holocene dune formation from existing full-glacial sand sheets throughout much of central Alaska. Given large areas of reworked sand deposits on the margins of the dunes in Tanana Flats, such a scenario might account for dune formation here. Final dune formation likely occurred during the latest Pleistocene, with subsequent early Holocene dune stabilization and vegetation. This notion is supported by an inferred terminal Pleistocene increase in wind intensity in central Alaska during the Younger Dryas (Bigelow et al. 1990).

Lithologically the dunes consist of very fine to medium aeolian sand, and reworked organic silty sand. Both deposits are capped by aeolian silt from 1 to 3.5 m thick. Vegetation in the dunes is dominated by broadleaf and mixed broadleaf-needleleaf forests associated with better drained soils. The dunes are surrounded by abandoned floodplain alluvium on the north and west, swamp deposits on the east and Holocene-aged outwash in the south and central portions.

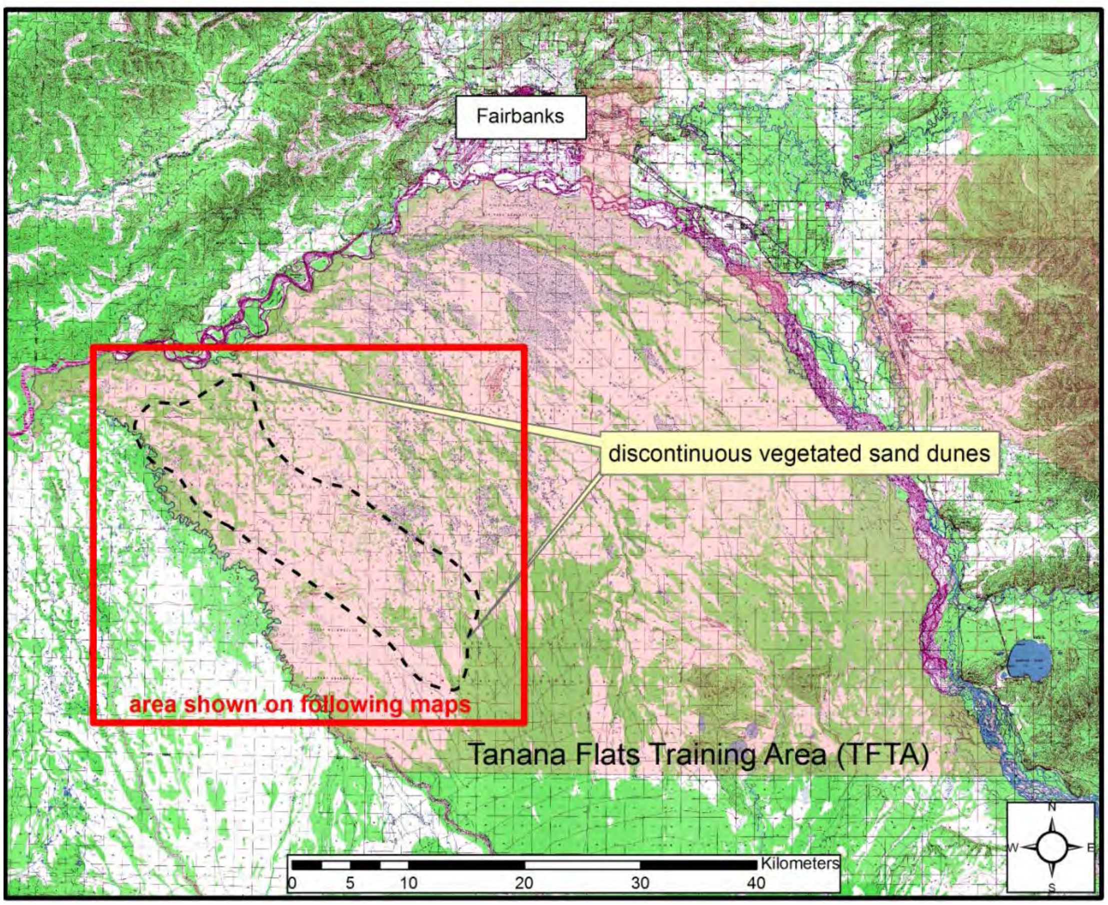

Figure 37. Location of stabilized dune field in TFTA

The dunes were subject to archaeological survey during 1979 (Dixon et al. 1980: 33, 48, 217-218). No sites were identified during at the time, despite the fact that over 495 shovel test pits were excavated. The recent dune field survey was initiated in 2009 by CEMML, with 25 prehistoric sites found in the initial survey.

The dune field was targeted for archaeological survey during 2010 as part of a long range planning and feasibility assessment related to potential range development in TFTA. Fieldwork was conducted by a team of five CEMML archaeologists under the direct supervision of Edmund Gaines, M.A., R.P.A. during August 2010 using the same field methods described above.

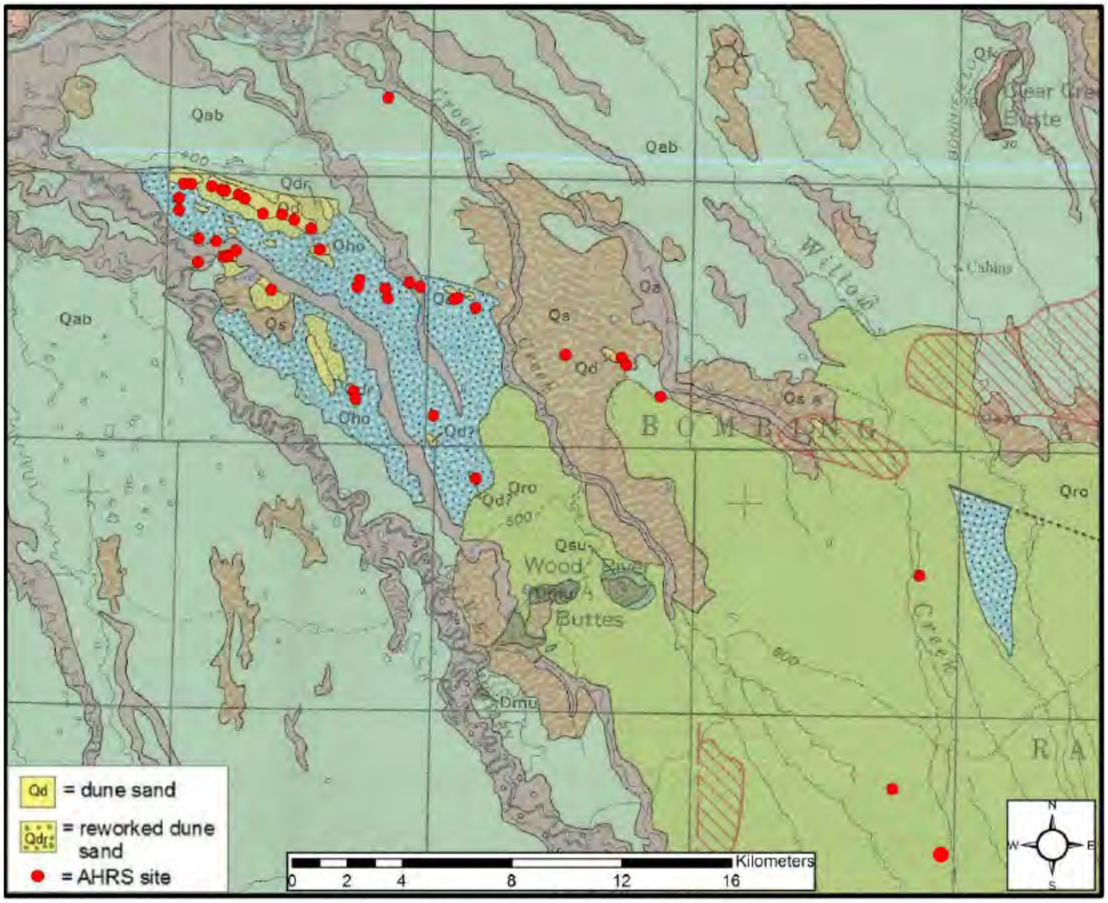

Figure 38. Geologic map of dune field and AHRS sites (adapted from Péwé et al. 1966)

4.2.3 Bedrock Knolls

The northern portion of TFTA is punctuated by a series of bedrock knolls. These are composed of Precambrian Birch Creek schist bedrock and covered with a thin (50-150 cm) mantle of loess. The larger knolls, such as Clear Creek Buttes and Wood River Buttes, rise to an elevation of 300 masl. These features are readily identified on a USGS topographic map. One of the initial archaeological surveys of TFTA conducted by Dixon et al. (1980) targeted these higher, readily identifiable landforms, resulting in the identification of five sites on Clear Creek Buttes (Clear Creak Buttes Archaeological District) and 25 sites on Wood River Buttes (Wood River Buttes Archaeological District). There are, however, several lower, smaller knolls to the north of Clear Creek Butte. Due to their low elevation, most of these do not appear on USGS topographic maps but are identifiable by low-speed, low-elevation flyover. One of these low landforms, Salmon Loaf Butte, is home to one site identified in 2001 and two sites identified in 2008 (Gaines et al. 2009). During 2010, an additional low knoll was selected for ground survey. The knoll was initially identified as a high-probability landform during snow machine reconnaissance in January 2010. This survey identified one archaeological site.

4.3 TFTA Sites

TFTA is currently home to 140 known prehistoric sites and 7 historic sites (Table 3, Figure 39).

Table 3. Archaeological sites in TFTA

#	AHRS #	Period	DOE Status	#	AHRS #	Period	DOE Status
1	FAI-0044	Prehistoric	Eligible	**76**	FAI-2012	Prehistoric	Not evaluated
2	FAI-0045	Prehistoric	Eligible	**77**	FAI-2013	Prehistoric	Not evaluated
3	FAI-0046	Historic	Eligible	**78**	FAI-2014	Prehistoric	Not evaluated
4	FAI-0047	Prehistoric	Not evaluated	**79**	FAI-2015	Prehistoric	Not evaluated
5	FAI-0048	Prehistoric	Eligible	**80**	FAI-2016	Prehistoric	Not evaluated
6	FAI-0049	Prehistoric	Eligible	**81**	FAI-2018	Prehistoric	Not evaluated
7	FAI-0050	Prehistoric	Not evaluated	**82**	FAI-2019	Prehistoric	Not evaluated
8	FAI-0051	Prehistoric	Not evaluated	**83**	FAI-2020	Prehistoric	Not evaluated
9	FAI-0052	Prehistoric	Not evaluated	**84**	FAI-2021	Prehistoric	Not evaluated
10	FAI-0053	Prehistoric	Not evaluated	**85**	FAI-2022	Prehistoric	Not evaluated
11	FAI-0054	Historic	Eligible	**86**	FAI-2023	Prehistoric	Not evaluated
12	FAI-0055	Prehistoric	Not evaluated	**87**	FAI-2024	Prehistoric	Not evaluated
13	FAI-0056	Prehistoric	Not evaluated	**88**	FAI-2025	Prehistoric	Not evaluated
14	FAI-0057	Historic	Not evaluated	**89**	FAI-2026	Prehistoric	Not evaluated
15	FAI-0058	Historic	Not evaluated	**90**	FAI-2027	Prehistoric	Not evaluated
16	FAI-0059	Prehistoric	Not evaluated	**91**	FAI-2028	Prehistoric	Not evaluated
17	FAI-0060	Prehistoric	Not evaluated	**92**	FAI-2029	Prehistoric	Not evaluated
18	FAI-0086	Prehistoric	Not evaluated	**93**	FAI-2030	Prehistoric	Not evaluated
19	FAI-0087	Prehistoric	Not evaluated	**94**	FAI-2031	Prehistoric	Not evaluated
20	FAI-0088	Prehistoric	Not evaluated	**95**	FAI-2032	Prehistoric	Not evaluated
21	FAI-0170	Prehistoric	Not evaluated	**96**	FAI-2033	Prehistoric	Not evaluated
22	FAI-0171	Prehistoric	Not evaluated	**97**	FAI-2043	Prehistoric	DOE pending
23	FAI-0172	Prehistoric	Not evaluated	**98**	FAI-2044	Prehistoric	Not evaluated
24	FAI-0173	Prehistoric	Not evaluated	**99**	FAI-2045	Prehistoric	Not evaluated
25	FAI-0174	Prehistoric	Not evaluated	**100**	FAI-2046	Prehistoric	Not evaluated
26	FAI-0175	Prehistoric	Not evaluated	**101**	FAI-2047	Prehistoric	DOE pending
27	FAI-0176	Prehistoric	Not evaluated	**102**	FAI-2048	Prehistoric	Not evaluated
28	FAI-0177	Prehistoric	Not evaluated	**103**	FAI-2049	Prehistoric	Not evaluated
29	FAI-0178	Prehistoric	Not evaluated	**104**	FAI-2050	Prehistoric	Not evaluated
30	FAI-0179	Prehistoric	Not evaluated	**105**	FAI-2051	Prehistoric	Not evaluated
31	FAI-0180	Prehistoric	Not evaluated	**106**	FAI-2052	Prehistoric	Not evaluated
32	FAI-0181	Prehistoric	Not evaluated	**107**	FAI-2053	Prehistoric	Not evaluated
33	FAI-0182	Prehistoric	Not evaluated	**108**	FAI-2054	Prehistoric	Not evaluated
34	FAI-0183	Prehistoric	Not evaluated	**109**	FAI-2055	Prehistoric	Not evaluated
35	FAI-0184	Prehistoric	Not evaluated	**110**	FAI-2056	Prehistoric	Not evaluated
36	FAI-0185	Prehistoric	Not evaluated	**111**	FAI-2057	Prehistoric	Not evaluated

37	FAI-0186	Prehistoric	Not evaluated	**112**	FAI-2058	Prehistoric	Not evaluated
38	FAI-0187	Prehistoric	Not evaluated	**113**	FAI-2059	Prehistoric	Not evaluated
39	FAI-0188	Prehistoric	Not evaluated	**114**	FAI-2060	Prehistoric	DOE pending
40	FAI-0189	Prehistoric	Not evaluated	**115**	FAI-2061	Prehistoric	Not evaluated
41	FAI-0190	Prehistoric	Not evaluated	**116**	FAI-2062	Prehistoric	Not evaluated
42	FAI-0191	Prehistoric	Not evaluated	**117**	FAI-2063	Prehistoric	DOE pending
43	FAI-0192	Prehistoric	Not evaluated	**118**	FAI-2064	Prehistoric	DOE pending
44	FAI-0193	Prehistoric	Not evaluated	**119**	FAI-2065	Prehistoric	Not evaluated
45	FAI-0194	Prehistoric	Eligible	**123**	FAI-2066	Prehistoric	DOE pending
46	FAI-0195	Prehistoric	Eligible	**121**	FAI-2067	Prehistoric	Not evaluated
47	FAI-0196	Prehistoric	Eligible	**122**	FAI-2068	Prehistoric	Not evaluated
48	FAI-0197	Prehistoric	Eligible	**123**	FAI-2069	Prehistoric	Not evaluated
49	FAI-0198	Prehistoric	Eligible	**124**	FAI-2070	Prehistoric	Not evaluated
50	FAI-0243	Prehistoric	Not evaluated	**125**	FAI-2071	Prehistoric	Not evaluated
51	FAI-0335	Prehistoric	Eligible	**126**	FAI-2072	Prehistoric	Not evaluated
52	FAI-0336	Prehistoric	Eligible	**127**	FAI-2073	Prehistoric	DOE pending
53	FAI-0337	Prehistoric	Eligible	**128**	FAI-2074	Prehistoric	Not evaluated
54	FAI-0391	Historic	Not evaluated	**129**	FAI-2075	Prehistoric	Not evaluated
55	FAI-0423	Historic	Not evaluated	**130**	FAI-2076	Prehistoric	Not evaluated
56	FAI-1356	Prehistoric	Not evaluated	**131**	FAI-2077	Prehistoric	DOE pending
57	FAI-1357	Prehistoric	Not evaluated	**132**	FAI-2078	Prehistoric	Not evaluated
58	FAI-1607	Historic	Ineligible	**133**	FAI-2079	Prehistoric	Not evaluated
59	FAI-1885	Prehistoric	Not evaluated	**134**	FAI-2080	Prehistoric	Not evaluated
60	FAI-1886	Prehistoric	Not evaluated	**135**	FAI-2081	Prehistoric	Not evaluated
61	FAI-1887	Prehistoric	Not evaluated	**136**	FAI-2082	Prehistoric	Not evaluated
62	FAI-1888	Prehistoric	Not evaluated	**137**	FAI-2083	Prehistoric	Not evaluated
63	FAI-1889	Prehistoric	Not evaluated	**138**	FAI-2084	Prehistoric	Not evaluated
64	FAI-1998	Prehistoric	Not evaluated	**139**	FAI-2085	Prehistoric	Not evaluated
65	FAI-2001	Prehistoric	Not evaluated	**140**	FAI-2086	Prehistoric	Not evaluated
66	FAI-2002	Prehistoric	Not evaluated	**141**	FAI-2087	Prehistoric	Not evaluated
67	FAI-2003	Prehistoric	Not evaluated	**142**	FAI-2088	Prehistoric	Not evaluated
68	FAI-2004	Prehistoric	Not evaluated	**143**	FAI-2089	Prehistoric	Not evaluated
69	FAI-2005	Prehistoric	Not evaluated	**144**	FAI-2090	Prehistoric	Not evaluated
70	FAI-2006	Prehistoric	Not evaluated	**145**	FAI-2091	Prehistoric	Not evaluated
71	FAI-2007	Prehistoric	Not evaluated	**146**	FAI-2092	Prehistoric/H	Not evaluated
72	FAI-2008	Prehistoric	Not evaluated	**147**	FAI-2093	Prehistoric	Not evaluated
73	FAI-2009	Prehistoric	Not evaluated	**148**	FAI-2094	Prehistoric	Not evaluated
74	FAI-2010	Prehistoric	Not evaluated	**149**	FAI-2095	Prehistoric	Not evaluated
75	FAI-2011	Prehistoric	Not evaluated	**150**	FAI-2097	Prehistoric	Not evaluated

Three archaeological districts – Clear Creek Buttes Archaeological District (five sites on the crest of Clear Creek Buttes), Wood River Buttes Archaeological District (27 prehistoric sites located among the Wood River Buttes), and Blair Lakes Archaeological District (four prehistoric sites and two historic sites located on north shore of Blair Lake South) – are also located in this training area. Eleven sites are eligible for the NRHP, two are not eligible, and 134 have not yet been evaluated (Table 3). Fifty-four new sites were discovered in 2011. They are described below.

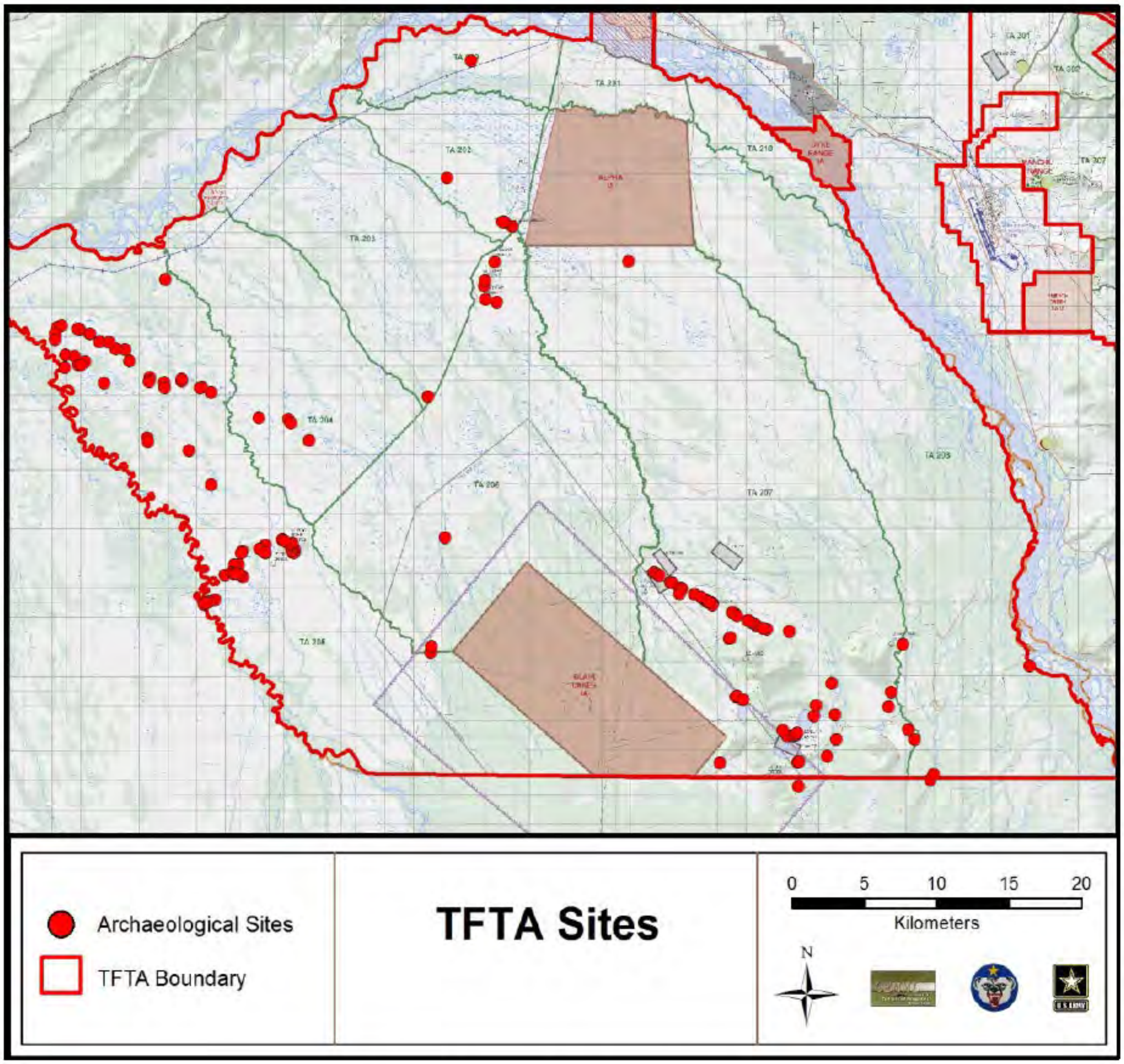

Figure 39. TFTA archaeological site locations

4.3.1 Alluvial Terrace Edge Sites

Thirty-six archaeological sites were found in 2010 along the alluvial terrace edge, Dry Creek, and the adjacent knolls (Figure 40). One of these sites, FAI-02043 was especially significant for its deep stratigraphy, multiple cultural components, and late Pleistocene radiocarbon dates. Test excavations at this site, as well as preliminary data for all other sites, are provided in this section.

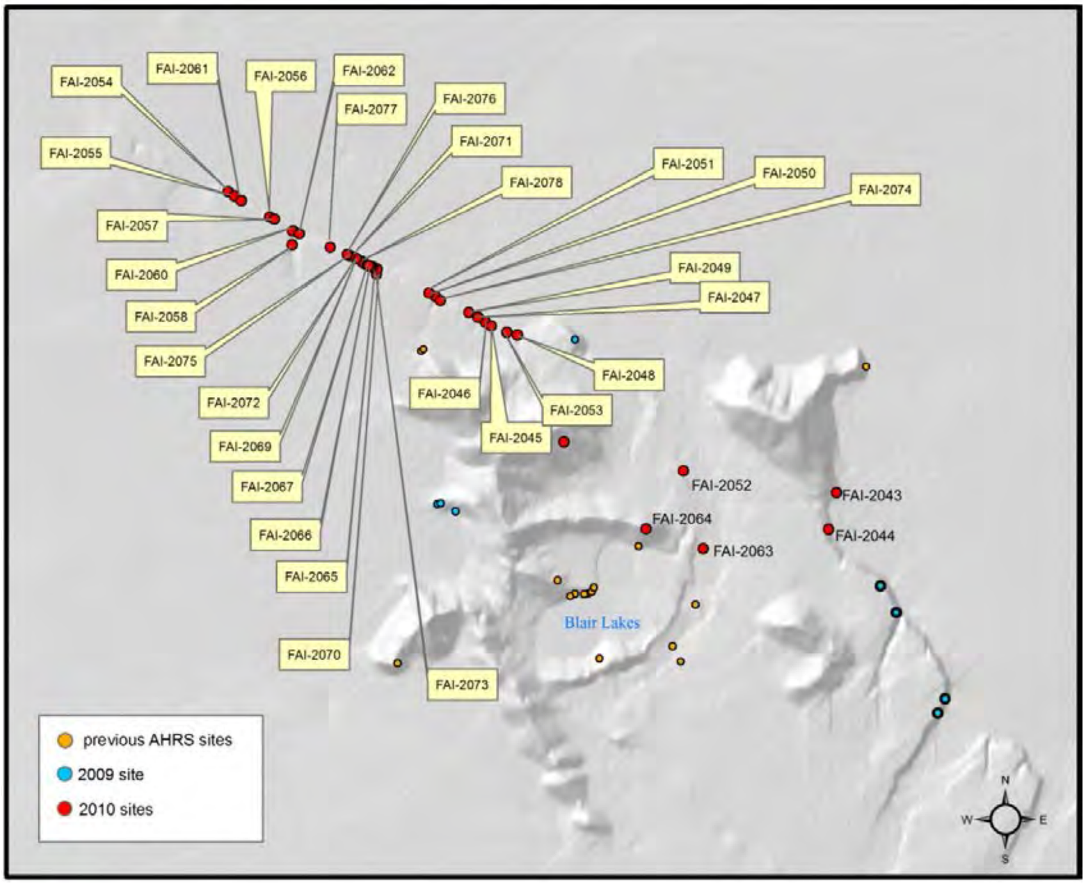

Figure 40. Locations of terrace edge sites discovered in 2009 and 2010

FAI-02043
Latitude: [redacted]
Longitude: [redacted]
Determination of Eligibility: Eligible (See DOE form in Appendix 1)

Site FAI-02043 is located at the foot of a large bedrock knoll, roughly 7 km east of the Blair Lakes at UTM coordinates [redacted]. Site elevation is 260 masl. The site is located on a roughly 100-m-wide promontory that juts around 200 m to the east of prominent bedrock knoll where it interfaces with a north-south running terrace edge (Figure 41, Figure 42). Site slope is 0-3%. The east, north, and south sides slope at ~25%-35%, dropping 20-25 m to the flats below, while to the west and northwest, the landform gradually rises up to the knoll above (Figure 43). The vantage point provides a commanding view to the east of the flats below, the Tanana River Valley, and Flag Hill. The ecosystem is characterized as mixed needleleaf-broadleaf forest with an understory of young birch, some alder, shrubs and forbs (Figure 44, Figure 45). There is little (5-10%) surface exposure on the site area; however, the slope to the east exhibits large bare patches over 50-60%.

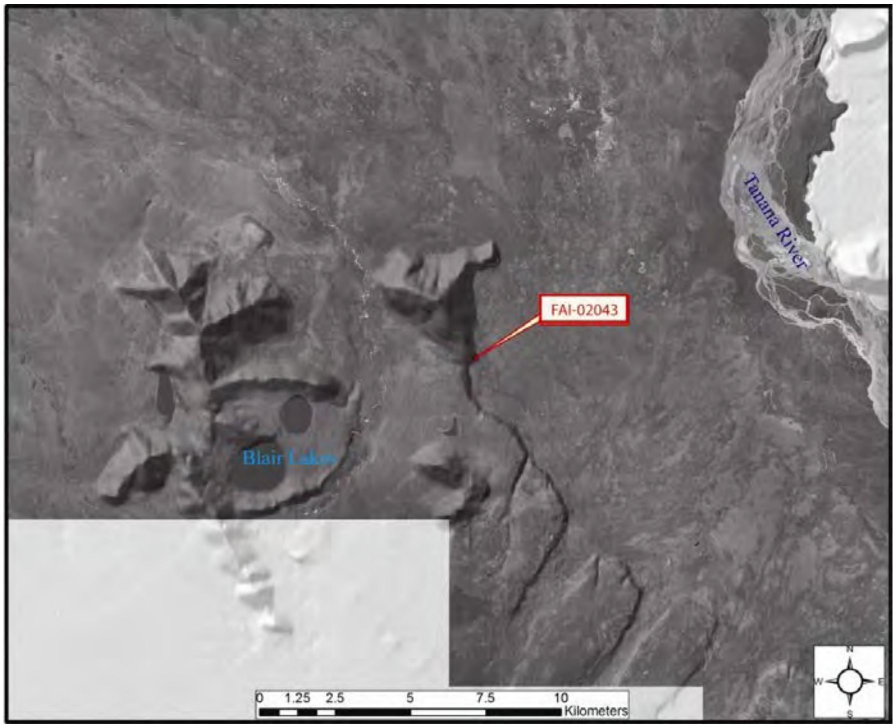

Figure 41. DEM of FAI-02043 location

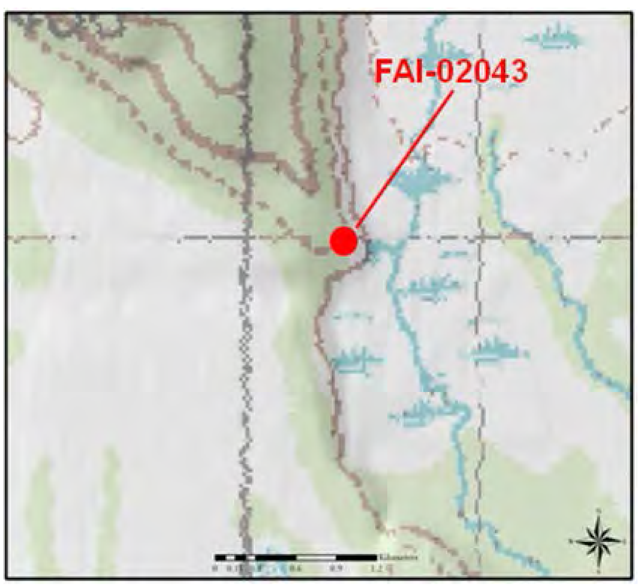

Figure 42. FAI-02043 landform

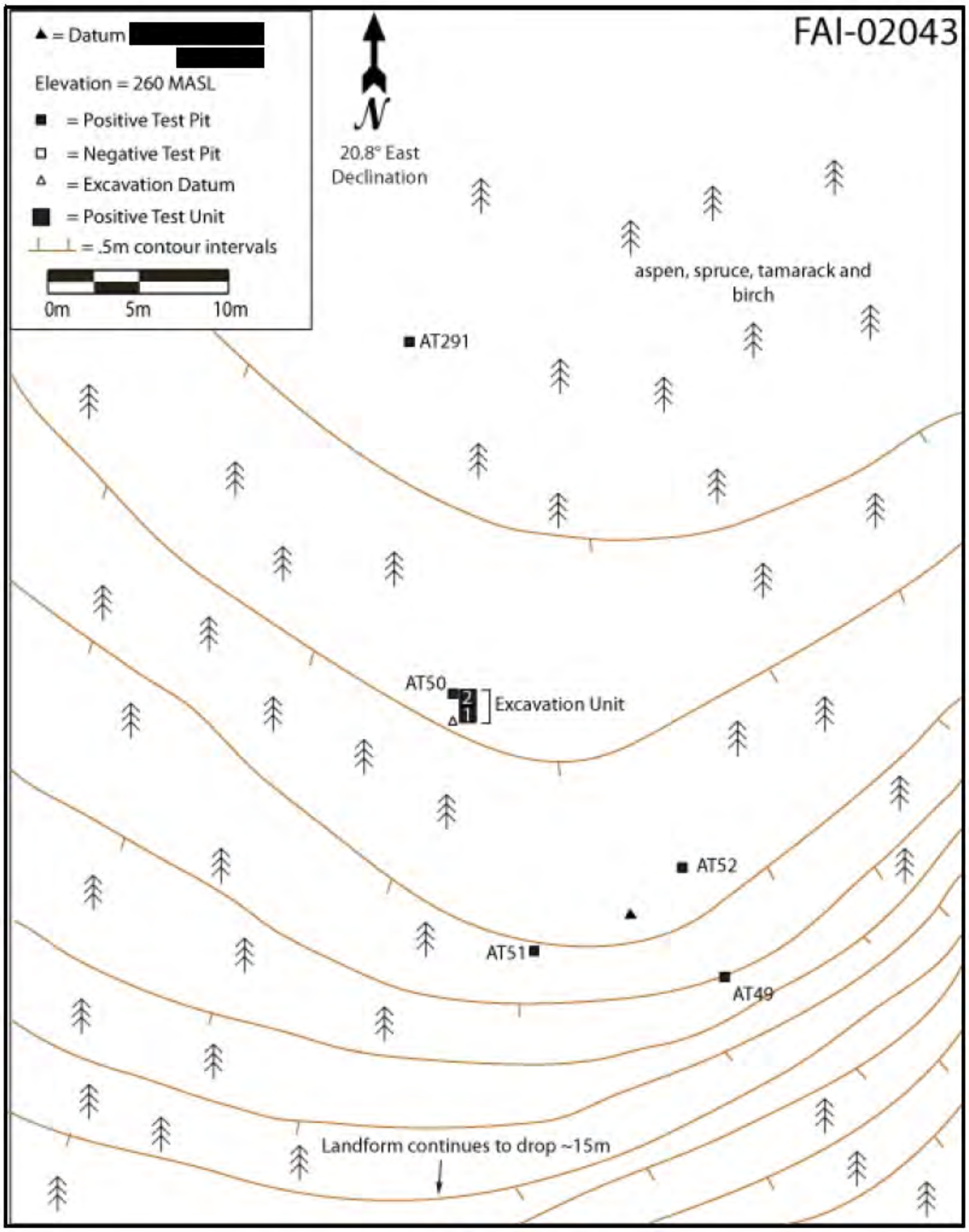

Figure 43. FAI-02043 sketch map

Figure 44. FAI-02043 ground overview (view to north)

Figure 45. FAI-02043 aerial overview (view to south)

Site Discovery

Site FAI-02043 was identified through subsurface testing. At the time of discovery, 94 flakes were recovered from four of four test pits excavated (Appendix 2); two of these tests also yielded unidentifiable large mammal faunal fragments. Shovel testing suggested that the site contained at least two components: one at ~0-45 cm BS and another deeply buried in the lower loess and basal sands at 90-120 cm BS. Three of the four test pits, those nearest the edge of the landform, reached basal gravels at 100-130 cm BS, while one test pit (AT 50) was excavated to the depth possible with a shovel, terminating at 140 cm BS without finding the bottom of the basal sands.

Test pit AT 50 provided a piece of charcoal associated with flaked stone roughly 2 cm above the loess/sand contact that dated to 10,730 ± 50 ^{14}C years BP (Beta-281235), demonstrating the antiquity of the lower component. Dispersed charcoal found in association with flakes in the upper component at 22 cm BS produced a date of 6460 ± 40 (Beta-283427), revealing the presence of a middle-Holocene occupation.

Site Testing and Unit Excavation

Several factors pointed to the need to more thoroughly characterize the archaeological environment of this area of TFTA. In 2009 and 2010, five other buried prehistoric sites were found on the same landform within 1.4-6 km, and an additional 14 sites were found on the same alluvial terrace 10-20 km to the northwest. Site FAI-02043 has a demonstrated occurrence of deeply buried artifacts associated with a 10,730 ± 50 ^{14}C years BP date. This date came from a position more than 50 cm higher than the deepest test and 20 cm above the lowest extent of cultural material, indicating the potential for even more ancient remains. The site also yielded large faunal fragments, which are a rarity in Interior Alaska. Given the poorly understood nature of cultural resources in the area and to assist range development planning, a research design was developed to better understand the archaeological resources at FAI-02043 and in the vicinity.

The overarching goal of site testing was to assess the significance of prehistoric cultural material in the area. The was accomplished through: (1) a strategy of testing deep stratigraphic deposits for the presence of archaeological materials, (2) expanding test pit AT50 to a 1 x 2 m excavation unit, (3) characterizing site stratigraphy, (4) characterizing landform geomorphology, and (5) determining dates of prehistoric occupation. Test excavations were conducted from August 5-12 and October 3-10, 2010, by a four-person CEMML crew under the direction of Edmund Gaines.

In order to address these research objectives, a total of 2 m^2 were excavated to a depth of about 135 cm BS. A 1 x 2 m excavation unit (Figure 46, Figure 47) expanded off of shovel test AT50, located in the northwest corner of the excavation unit. A metric grid system maintained horizontal control, with the southwestern corner of the excavation unit designated 500N (north)/100 E (east). Excavation took place in two excavation units: Excavation Unit 1 (EU1) from 500-501N, 100-101E; and adjacent Excavation Unit 2 (EU2) at 501-501N, 100-101E. The resulting 2 x 1 m excavation block extends from 500-502N, 100-101E.

A datum placed in the southwestern corner of the excavation unit at UTM coordinates 489017E; 7139975N (Trimble NAD 83) maintained vertical control throughout the course of excavation. All elevation measurements performed during the course of excavation were taken in reference to this vertical datum utilizing string line and level. The initial datum, Datum A, was set at a height of 4.5 cm above the ground surface in the southwestern corner of the excavation unit. During the second phase of excavation in October, a new datum, Datum C, replaced Datum A. Datum C was established in roughly the same spot as Datum A at a height of 3 cm above ground surface.

Figure 46. FAI-02043 excavation unit (view to east)

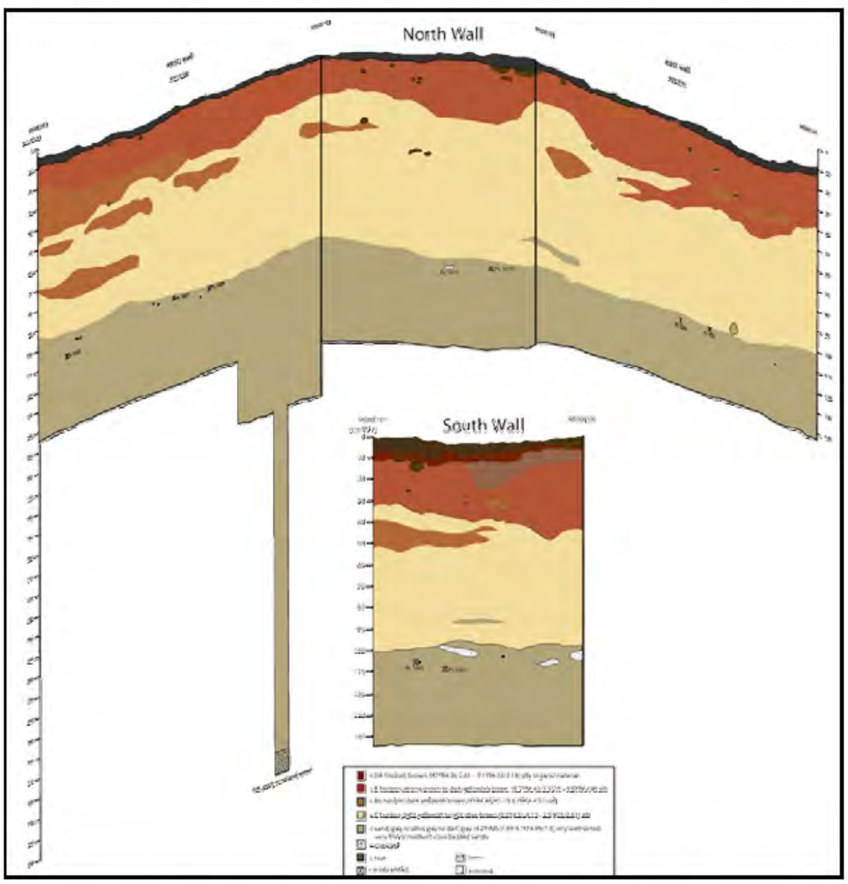

Figure 47. FAI-2043 excavation unit profile

A total of 14 levels were excavated (Table 4), extending the excavation roughly 35 cm into the basal sands and at least 15 cm deeper than the lowest recovered artifact. The upper five levels to a depth of 75 cm BS were shovel skimmed and screened through ¼” mesh. Roughly 10 cm above the depth of artifacts known from initial shovel testing, one level was excavated via trowel and 1/8” screen to a depth of 85 cm BS. Upon encountering artifacts, levels were excavated in 5 cm increments via trowel and sifted though1/8” screen. This excavation strategy was continued throughout the entire extent of cultural deposits. Roughly 10 cm below the depth of the lowest artifact recovered at 115 cm BS, shovel skimming and sifting through ¼” screen were resumed to ensure that excavations proceeded well into sterile deposits. Table 4 details excavation levels, depths (cm BS), the strata excavated, and methods:

Table 4. FAI-02043 unit excavation levels, depths, strata, and methods

Level	cm BS (±3)	Stratum	Methods	Screen
1	5-15	10yr4/6 dark yellowish brown silt, OA	shovel skim	1/4"
2	15-25	10yr4/6 dark yellowish brown silt, OA	shovel skim	1/4"
3	25-45	10yr4/6 dark yellowish brown silt, OA	shovel skim	1/4"
4	45-65	10yr4/6 to 2.5yr5/4	shovel skim	1/4"
5	65-75	2.5y light olive-brown silt	shovel skim	1/4"
6	75-85	2.5y light olive-brown silt	trowel	1/8"
7	85-90	2.5y5/3 light olive-brown sand/silt; to 2.5y 4/3 olive-brown fine sand silt	trowel	1/8"
8	90-95	2.5y5/4 light olive-brown silt and 2.5y5/4 light olive-brown sand	trowel	1/8"
9	95-100	silt	trowel	1/8"
10	100-105	silt	trowel	1/8"
11	105-110	silt to sand	trowel	1/8"
12	110-115	sand	trowel	1/8"
13	115-125	sand	trowel	1/8"
14	125-140	sand	shovel skim	1/8"

Collection and Documentation

All cultural material was collected and information recorded in accord with USAG FWA standards outlined in the ICRMP (CEMML 2001) and UAF Museum of the North collection requirements. An attempt was made to identify all cultural material *in situ* and record the precise 3-point provenience. Such materials were assigned a distinct PL (point located) number, their precise provenience recorded, and then individually bagged. Materials found in the screen were separated according to artifact type (e.g., bone, lithics ...) and bagged according to excavation unit, sub-quad when possible, and level/depth. Provenience information was recorded on artifact bags, in a field specimen (FS) log, on drawn plan views, and in the case of X, Y, Z located artifacts, in the PL log.

Excavation information consisting of plan views, stratum/level descriptions and measurements, field specimen data were recorded on standardized archaeological recording forms. All of this information was also recorded in individual excavator’s notebooks as well as the field director’s notebook. Profiles were drawn to scale on metric graph paper. The PL log was kept in a separate notebook. Digital photos documented the site and excavation process. Artifacts, samples, stratigraphic profiles, excavation processes and overviews, as well as aerial views, were photo-documented throughout all stages of excavation. A total of 798 photos were taken, ensuring comprehensive photo-documentation of the excavation process. All photos were logged in a separate notebook that served as the dedicated photo log.

Additional site testing consisted of a single shovel test (AT 291) excavated roughly 20 m to the north of the excavation unit. In order to test the depth of basal gravels across the landform, a series of five auger tests were conducted. One of these was placed in the bottom of test pit AT50 adjacent to the excavation unit.

Testing Results: Excavation

Levels 1-5 of the excavation unit produced no cultural remains. Artifacts were recovered from Levels 6-13. The basal level, Level 14, was 25 cm thick and excavated into entirely sterile deposits. Figures 48 through 58 detail the location of lithics and bone in each excavation level.

A total of 1,106 pieces of lithic debitage and 538 faunal fragments were recovered from the excavation unit. In addition, two cobble hammerstones and at least four enigmatic angular rocks, likely manuports, were recovered from the lower zone of cultural material. Lithic and faunal material was recovered from depths of 75 to125 cm BS; however, the continuous bell-shaped distribution of frequency of both artifact types by depth prevents separating components at the current phase of investigation.

Recovered tools were rare and only include two artifacts. One is an irregularly shaped small biface (Figure 59) made of gray rhyolite (10YR 6/1). It measures 29.4 mm maximum length, 13.8 mm maximum width, and 7.4 mm maximum thickness. It is completely covered on both faces by fine sub-parallel pressure retouch and displays a snap break on its proximal margin. The second tool recovered is a scraper fragment made on a flake (27.9 mm long, 11.75 mm max width, 2.1 mm max thickness) (Figure 60). It displays snap breaks on both lateral margins. The distal margin is 11.75 mm wide; the entire extent of which is covered by fine sub-parallel pressure retouch.

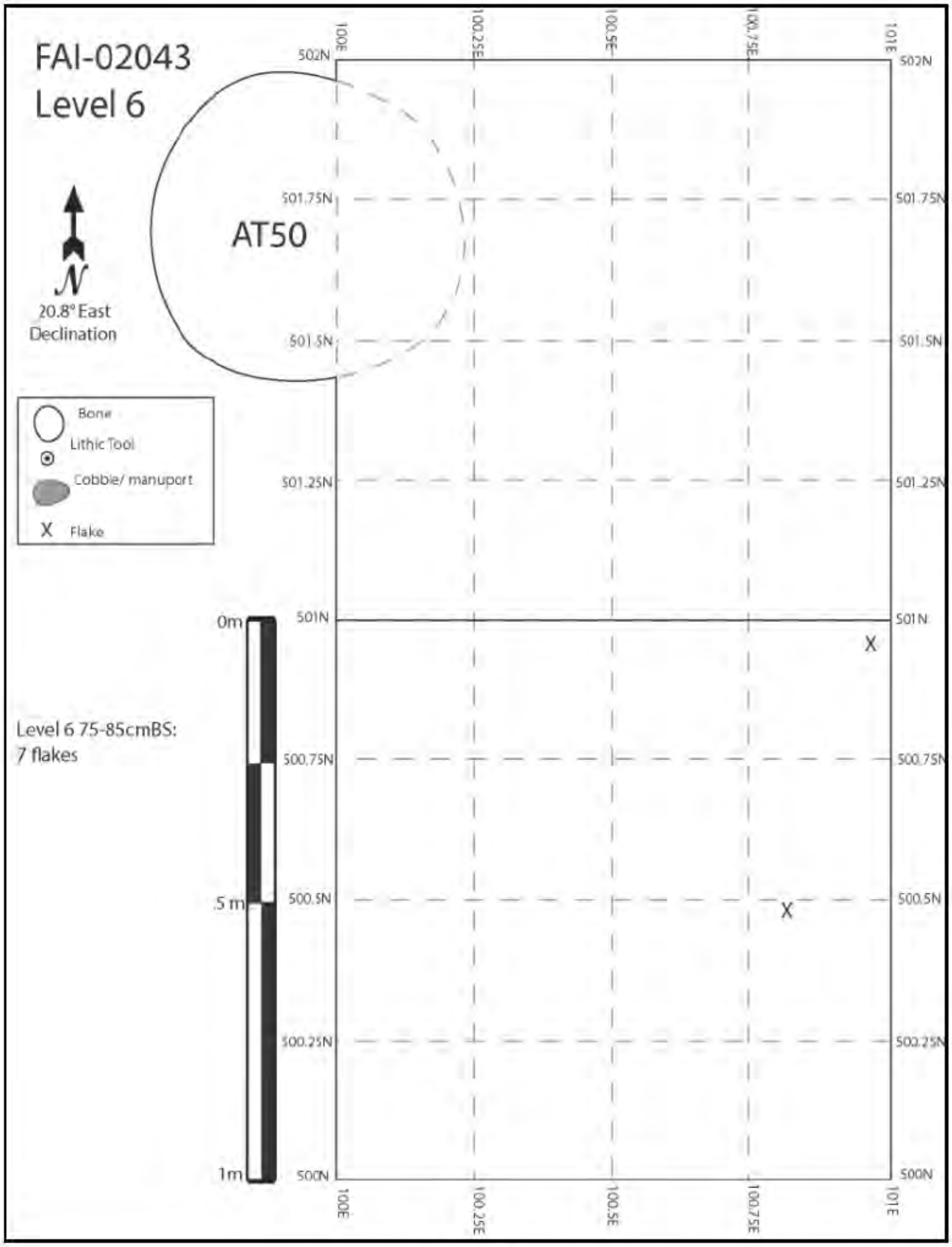

Figure 48. Level 6 plan view

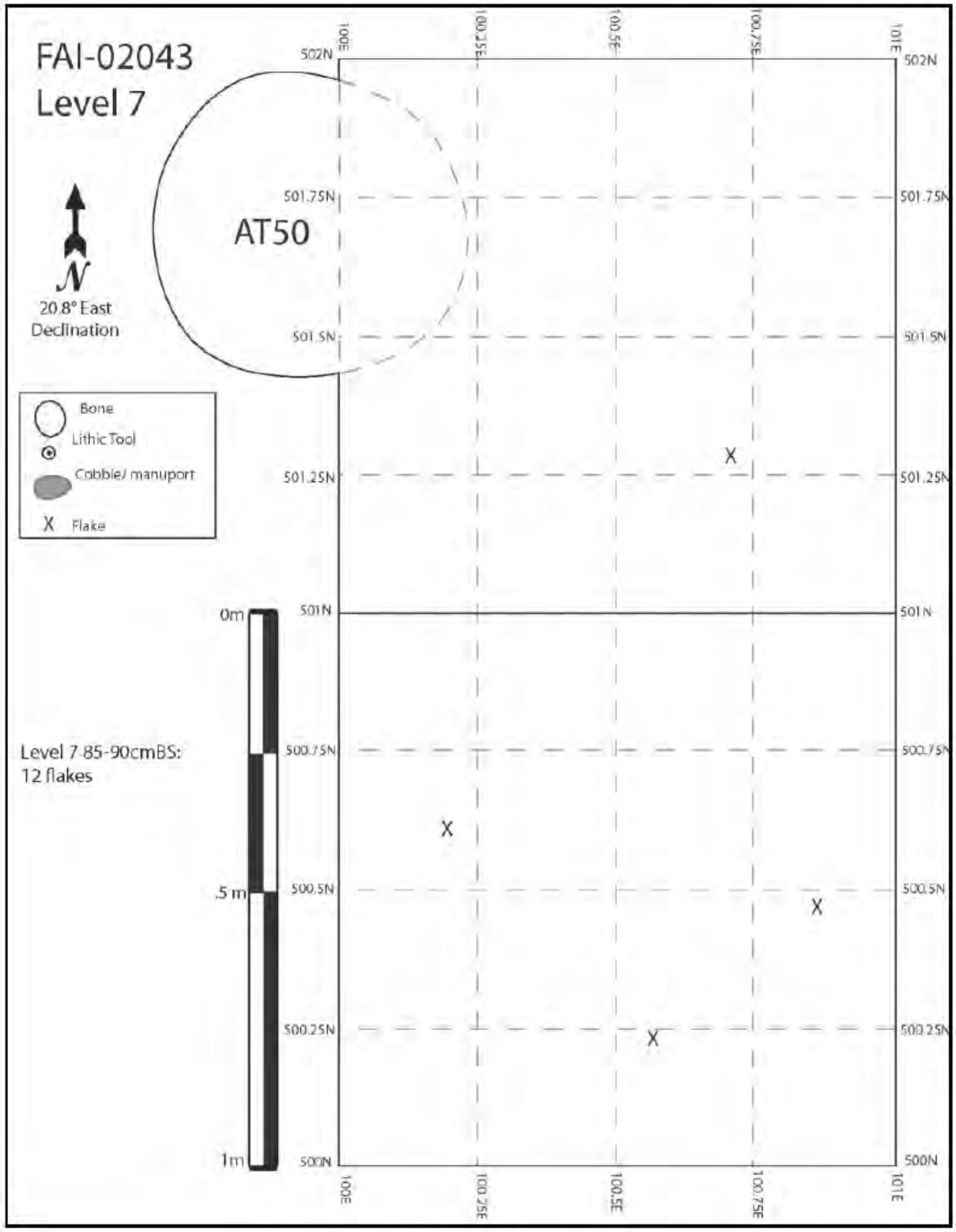

Figure 49. Level 7 plan view

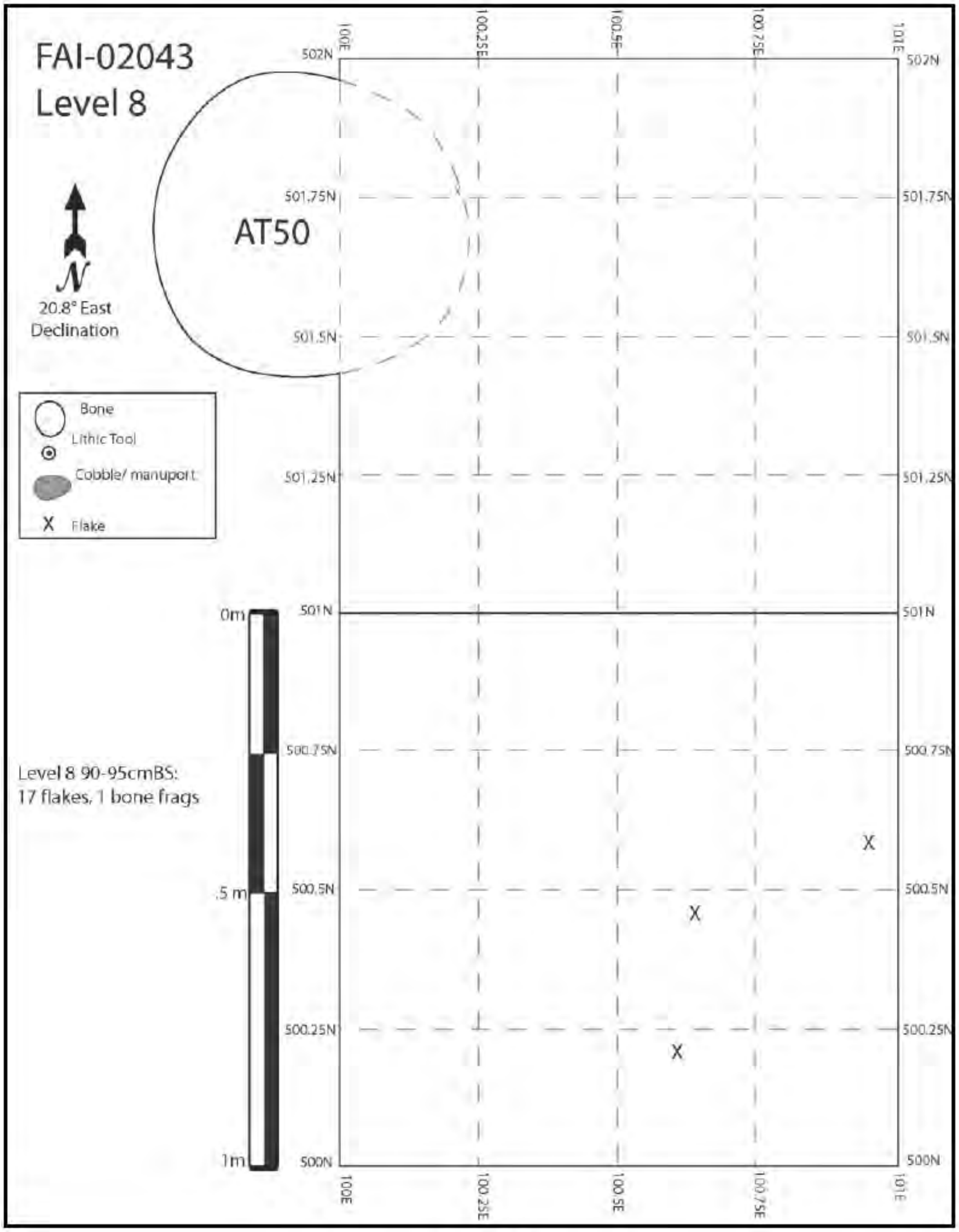

Figure 50. Level 8 plan view

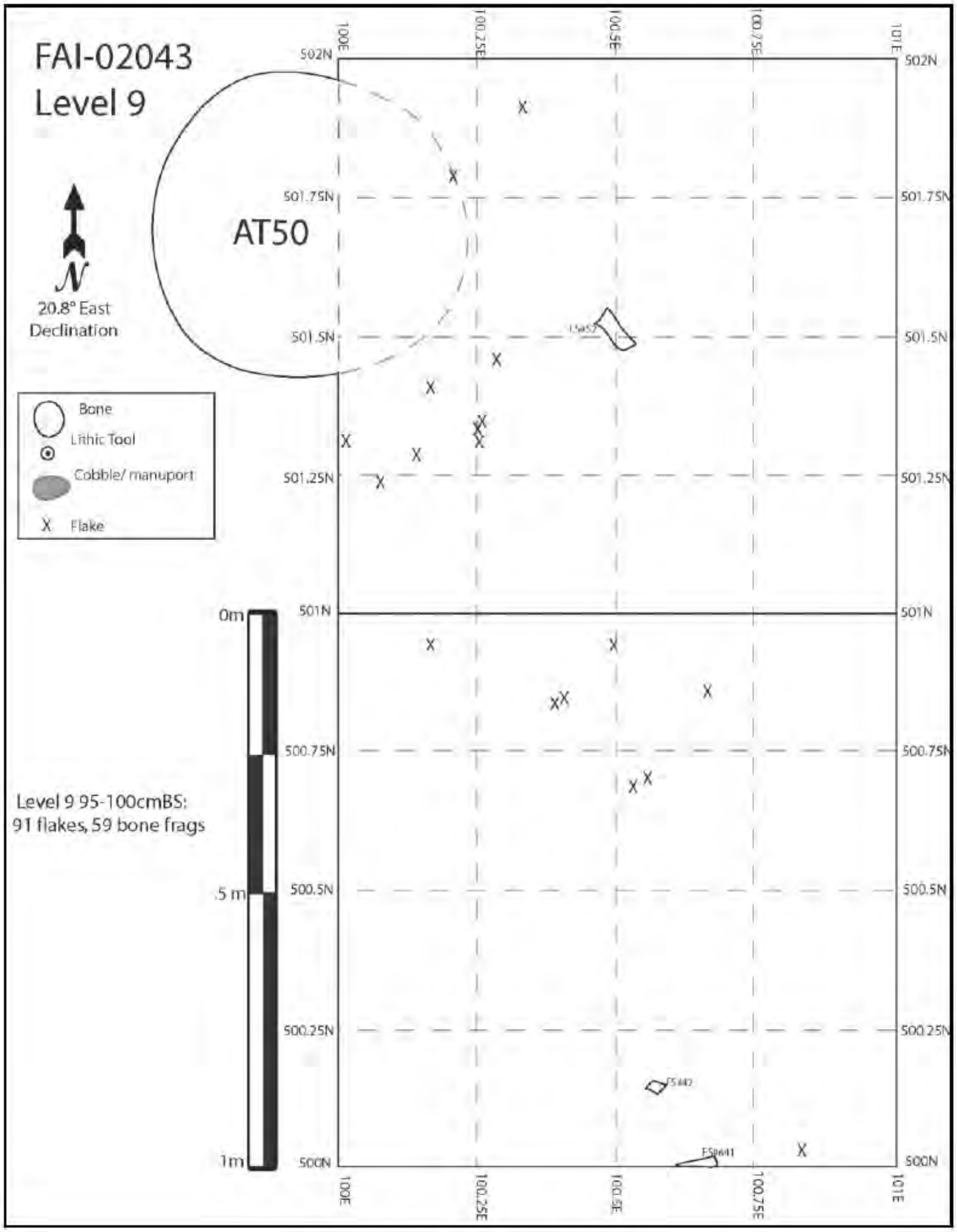

Figure 51. Level 9 plan view

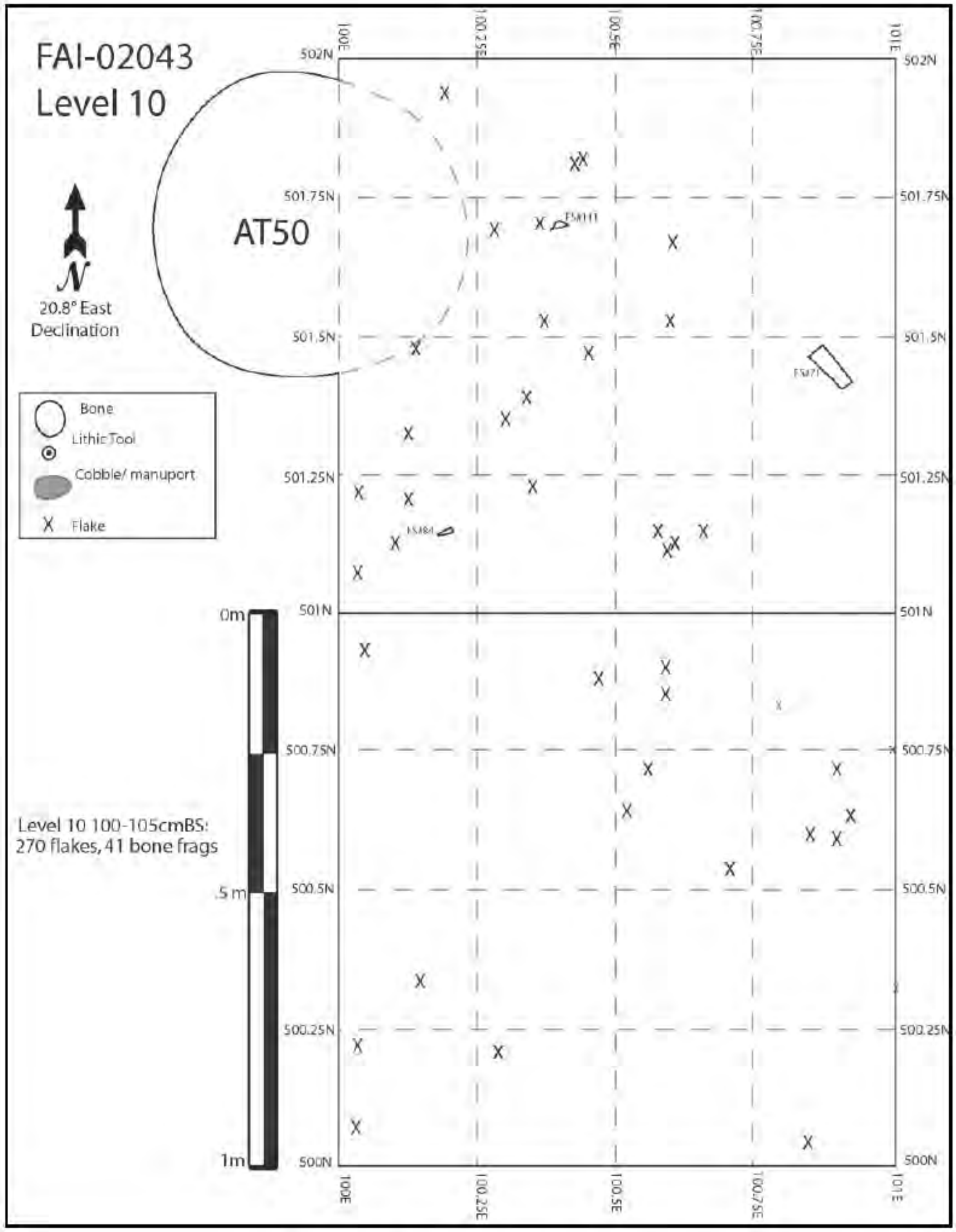

Figure 52. Level 10 plan view

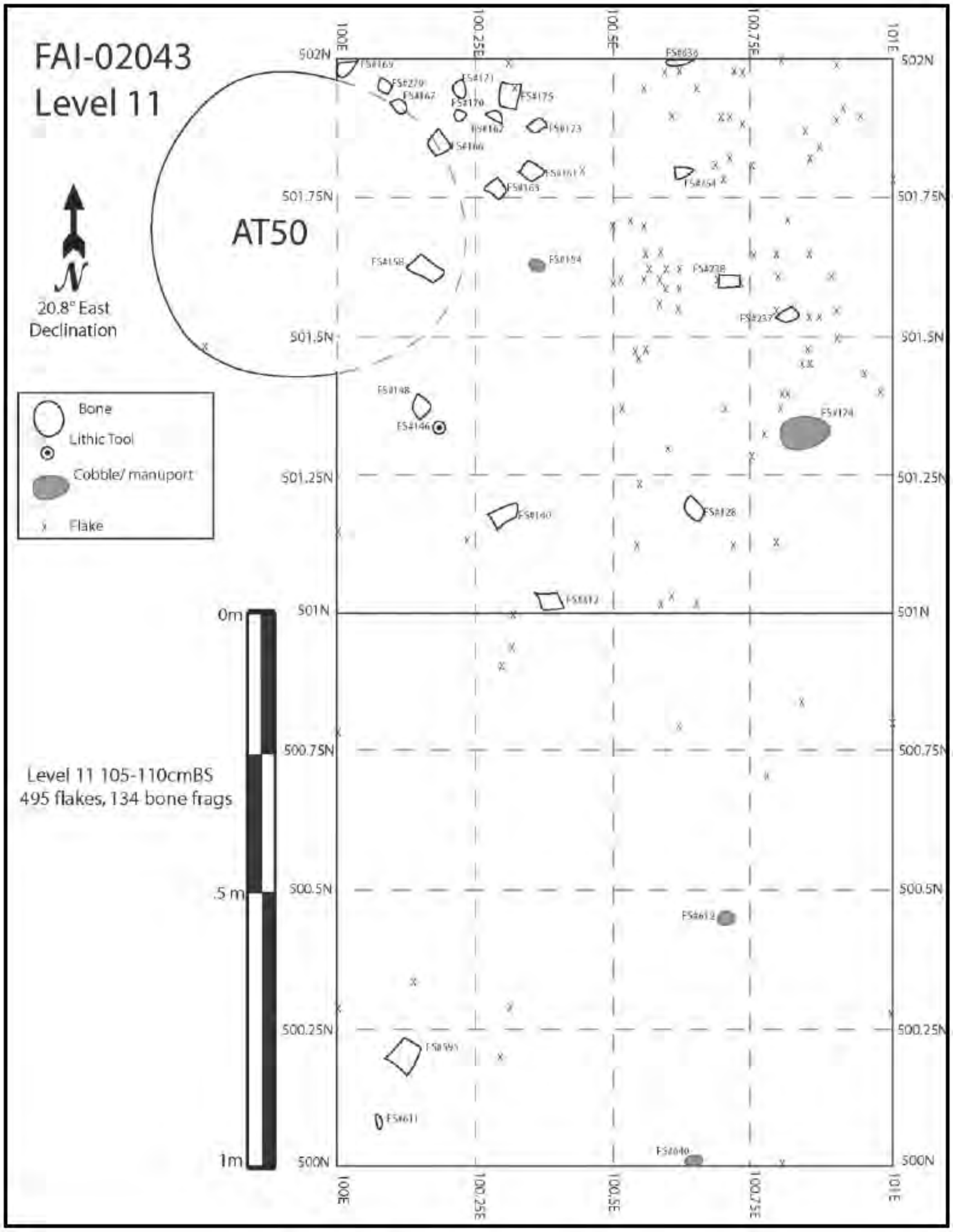

Figure 53. Level 11 plan view

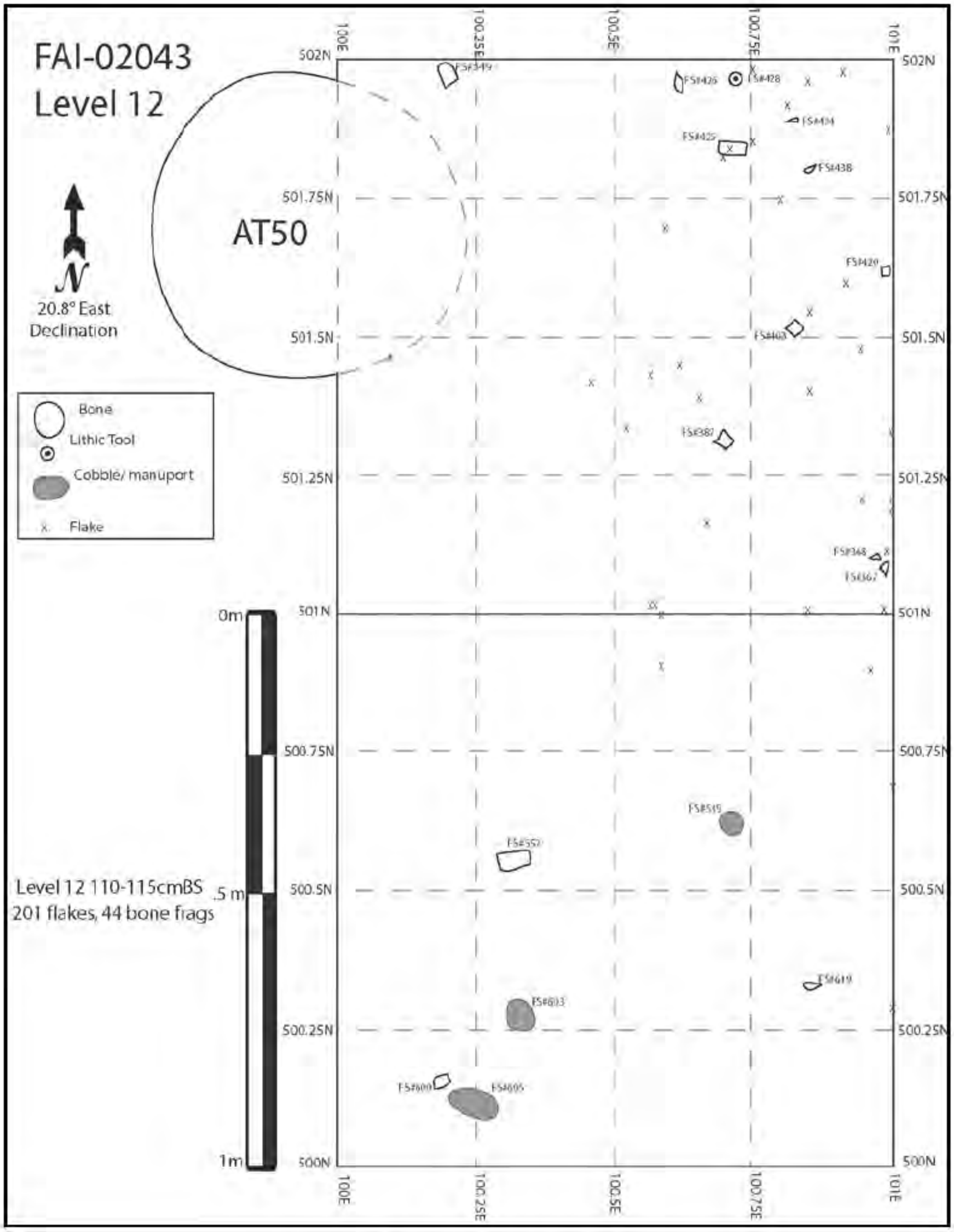

Figure 54. Level 12 plan view

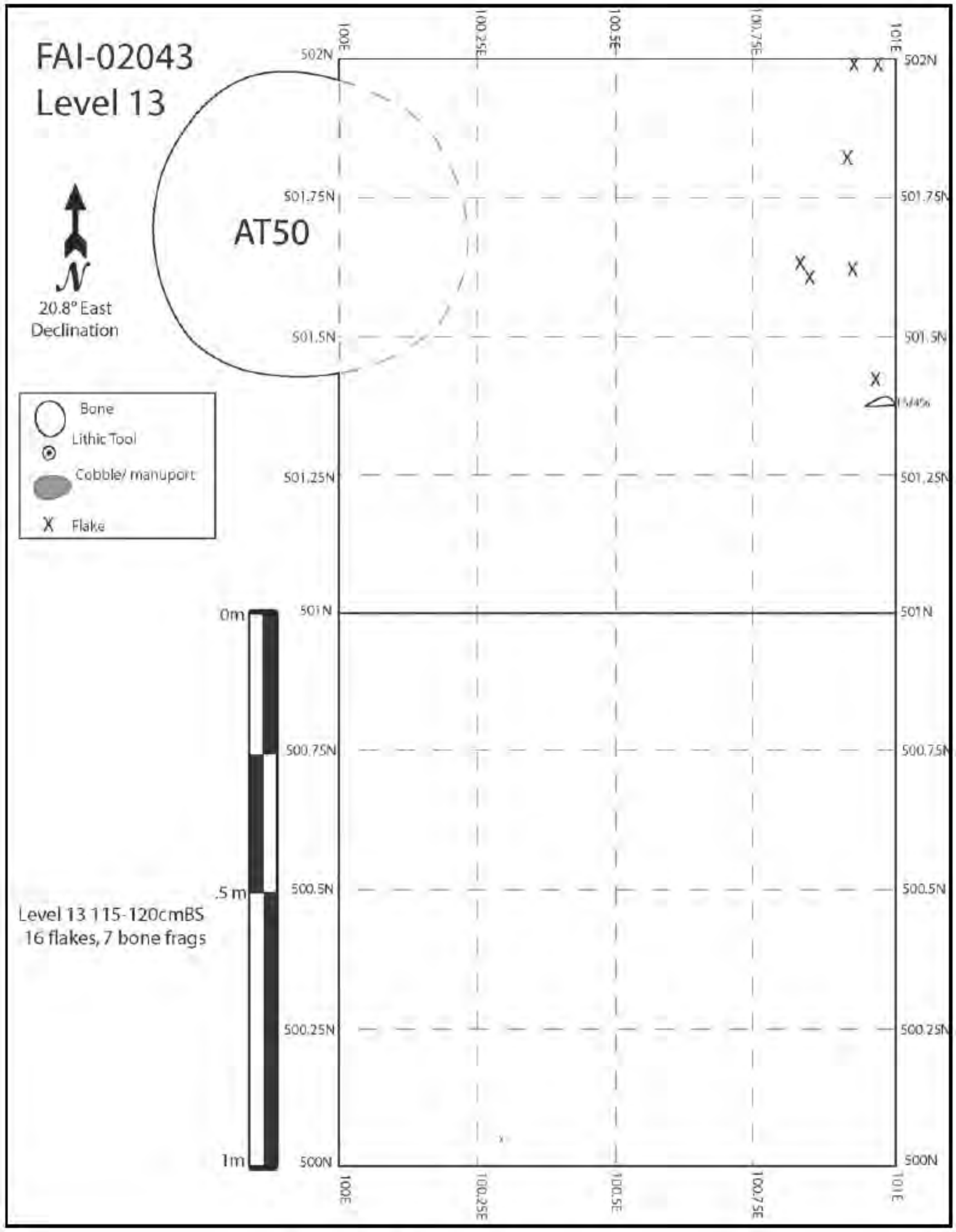

Figure 55. Level 13 plan view

Figure 56. FAI-02043 excavation in progress

Figure 57. FAI-02043 manuport in situ in Strat II sands

Figure 58. FAI-02043 manuports and flakes in situ in Strat II sands

Figure 59. FAI-02043 biface

Figure 60. FAI-02043 scraper fragment

With the exception of the tools described above, all of the recovered flaked stone is small (<10 mm diameter; Table 5; Figure 61) tertiary debitage characterized as broken flakes, flake fragments and flakes reflective of late-stage reduction and tool maintenance. Rhyolite is the major material type, comprising 73% of the assemblage (n=807). Other material types include (chert 12%; n=132), basalt (15%; n=163), two pieces of obsidian, and one piece of silicified silt/mudstone (Table 6, Figure 62).

Table 5. Debitage size count/level

Level	Size Range: 0-2.5 mm	2.5-5 mm	5-7.5 mm	7.5-10 mm	10-20 mm	20-30 mm	30-40 mm
6	0	0	2	2	3	0	0
7	0	4	1	5	1	1	0
8	1	8	11	2	3	0	0
9	12	33	25	15	5	1	0
10	44	72	79	40	22	2	0
11	49	99	164	108	71	4	0
12	18	41	74	40	24	4	0
13	0	4	5	5	2	0	0

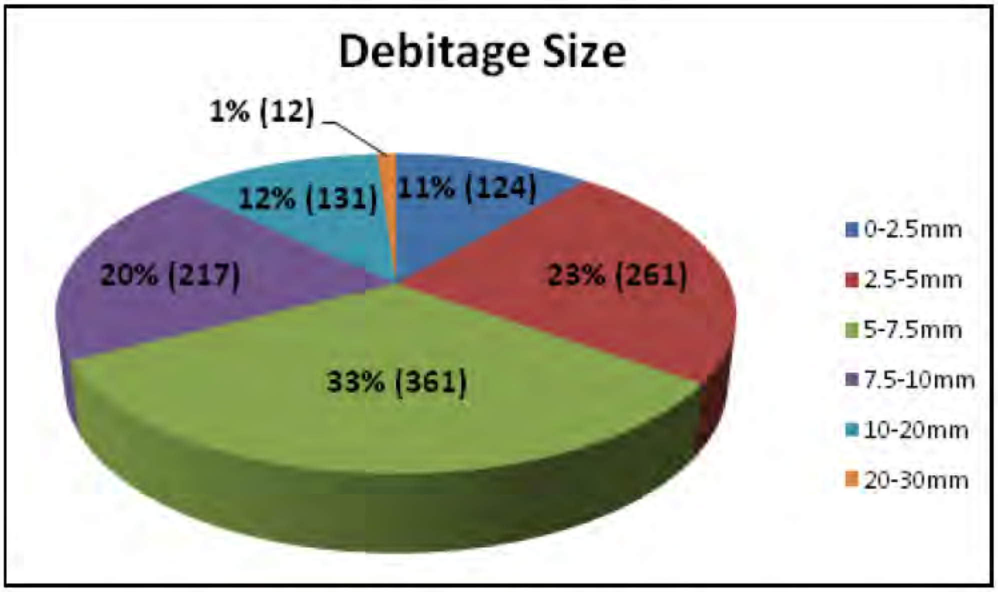

Figure 61. FAI-02043 debitage size frequency

Table 6. FAI-02043 material type/level

Level	Basalt	Chert	Rhyolite	Obsidian	Quartz	Siltstone
6	1	1	5	0	0	0
7	4	1	7	0	0	0
8	5	3	17	0	0	0
9	8	9	73	1	0	0
10	36	28	194	0	1	0
11	78	60	356	1	0	0
12	27	28	145	0	0	1
13	4	2	10	0	0	0

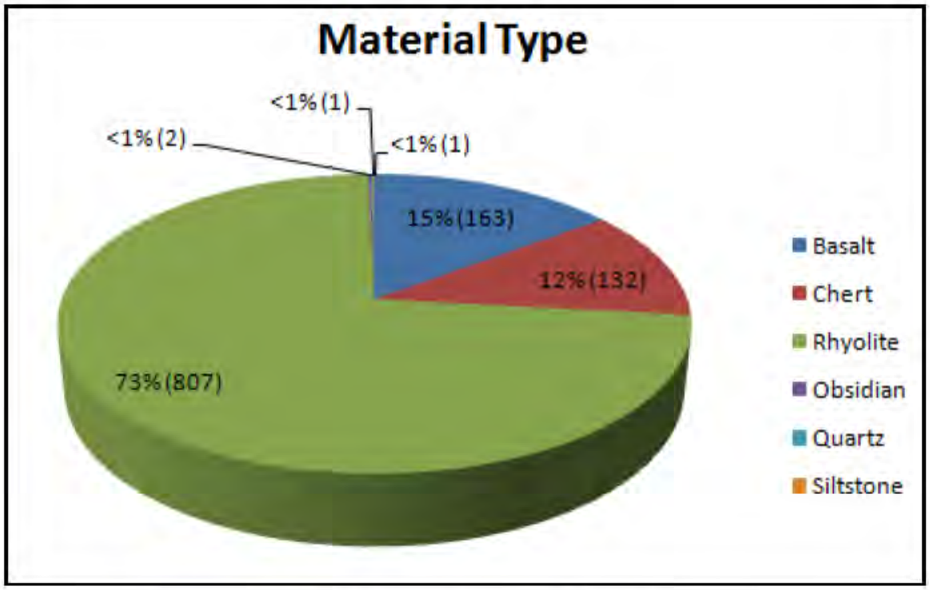

Figure 62. FAI-02043 material type frequency

The majority (96%; n=520) of the faunal remains are unidentifiable fragments (Table 7, Figure 63). Some are very large mammal (moose/bison sized) long bone fragments exhibiting breakage patterns characteristic of green bone fractures. Identifiable faunal remains (Appendix 3) consist of an Alaskan hare (*Lepus othus*) astragalus (Figure 64), a vertebrae and sternum from a goose/swan-sized waterfowl (*Anatidae* sp.) (Figure 65 and Figure 66), and a *Bison* sp. permanent M_3 molar (Figure 67). A specimen identified as red-backed vole (*Myodes rutilus*) is likely intrusive as it represents a nearly complete individual, is in a much fresher state of preservation than the other faunal specimen, and was found in the vicinity of a krotovina.

Table 7. FAI-02043 faunal fragment size count/level

		Size Range						
		0-5mm	**5-7.5mm**	**7.5-10mm**	**10-20mm**	**20-30mm**	**30-40mm**	**>40mm**
Level	**8**	6	5	1	2	0	0	0
	9	11	20	14	13	0	0	0
	10	58	18	7	1	0	0	0
	11	216	28	29	14	0	0	5
	12	57	13	6	8	1	1	0
	13	0	1	2	1	0	0	0

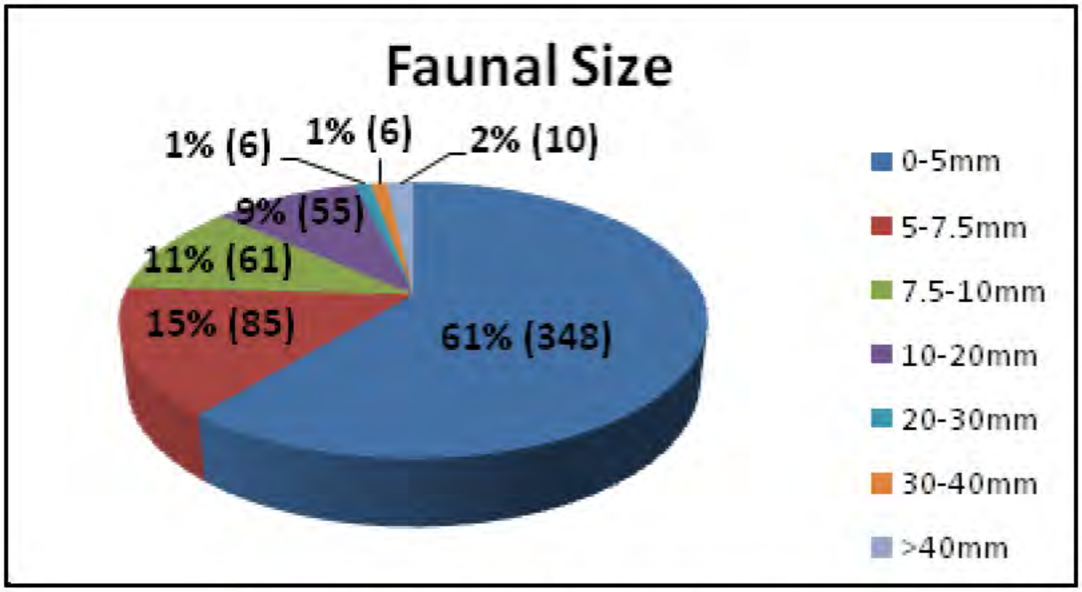

Figure 63. FAI-02043 faunal size frequency

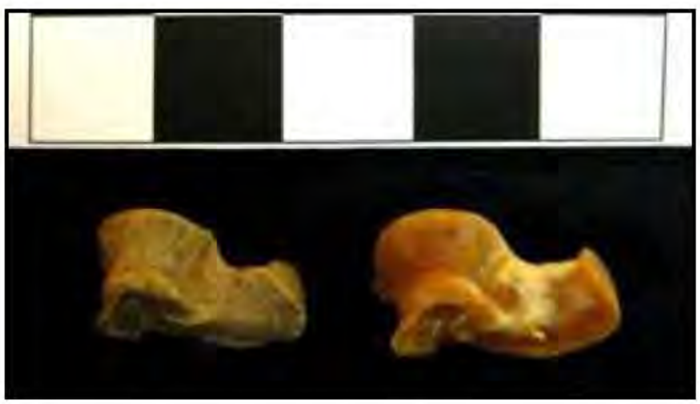

Figure 64. *Lepus othus* astragalus (archaeological specimen on left, modern comparative on right)

Figure 65. ***Anatidae*** **(sp) vertebrae (archaeological specimen on left, modern comparative on right)**

Figure 66. ***Anatidae*** **(sp) sternum (archaeological specimen on left, modern comparative on right)**

Figure 67. ***Bison bison*** **M_3**

Two rounded cobbles were found in the lowest component. The first of these (FS 174; Figure 68) is 78.3 mm long, 45.1 mm wide, and 20.9 mm thick. It has slight pitting on one end, indicating that it served as some sort of hammerstone. The second cobble (FS 605, Figure 69) is 81.2 mm long, 61.9 mm wide, and 44.3 mm thick, and weighs 269.115 g. It displays no pitting. Eight other angular to subangular rocks between 17.74 and 60.44 g in weight and between 20-50 mm in diameter were recovered. The presence of large rocks in an aeolian silt and sand deposit indicates that they may have been transported to the site by human agents.

Figure 68. FAI-02043 cobble/hammerstone (FS 174)

Figure 69. FAI-0243 cobble (FS 605)

Testing Results: Test Pit AT 291

Concurrent to unit excavation, test pit AT 291 was excavated roughly 20 m to the north of the excavation unit. The test pit produced over 330 flakes of lithic debitage (Appendix 2) and several green-fractured, large mammal long bone fragments (Figure 70; Figure 71, Figure 72). A piece of charcoal was found in direct association with bone fragment and flake at 100 cm BS. This produced an AMS (atomic mass spectroscopy) ^{14}C date of 11,600 ± 50 (Beta 283430).

Figure 70. Fauna and ^{14}C-dated charcoal from test pit AT 291

Figure 71. AT 291 green-fractured, large mammal long bone fragment in Stratum II sand matrix (note associated flake)

Figure 72. AT 291 green-fractured, large mammal long bone fragments in Strat II sand matrix

Three AMS ^{14}C dates were obtained from dispersed charcoal in very close association with cultural material. In all cases, the charcoal selected for dating was physically touching flakes. The samples were collected with steel instruments, either a trowel or dental pick, then stored in tinfoil and archival-quality plastic bags. All were submitted to Beta Analytic Laboratories for analysis, where they underwent standard pretreatment including physically removing rootlets and identifiable contaminants and an acid-base wash.

Table 8 presents the results of AMS determinations. Sample Beta # 283427 was collected from test pit AT 49 at the time of site discovery and represents a secure date for the upper component; sample Beta #283435 was collected from test pit AT 50 also the time of discovery and is a good date on the upper portions of the lower component. Sample Beta #283430 was collected during site testing from the lowest portions of the lower component. It was physically touching a flake and bone fragment (Figure 70) and is a secure date for the lowest portions of the lower component.

Table 8. AMS ^{14}C dates from FAI-2043

Material	Beta Lab#	C12/C13	Y BP	2 Sigma Cal	Depth (cm BS)	Strat
charcoal	283435	-25.3	10130 ± 50	11600-11990 Cal BP	22	upper Strat III silt; base of Bw
charcoal	283427	-26.3	6460 ± 40	7270-7430 Cal BP	90	lower Strat III silt, near II/III
charcoal	283430	-22.4	11600 ± 50	13330-13570 Cal BP	100	upper Strat II sand

Three general lithostratigraphic units were defined. These consist of basal gravels (Stratum I) overlain by thinly bedded aeolian sand (Stratum II), which is in turn capped by 100-150 cm of massive loess (Stratum III). Soil development noted in the field consists of modern boreal forest O/A/B/Bw horizons (Typic Chryocrept), with a series of buried Bw horizons in the middle to upper Stratum III loess. Augering revealed that both the thickness and weathering of Stratum III loess was relatively uniform across the site. Stratum III sands varied in thickness from roughly 1 m thick near the point of the local landform to 3.5 m thick at the excavation unit to roughly 5 m thick at the northern extent of augering roughly 20 m north of the excavation unit. In general, site stratigraphy was observed to be relatively uniform where observed in the test pits, excavation unit and auger tests. As such, it allowed for the development of generalized composite stratigraphic profiles detailed in Figure 73 and Figure 74.

Figure 73. FAI-02043 Excavation unit north wall stratigraphy, soils, and ^{14}C dates

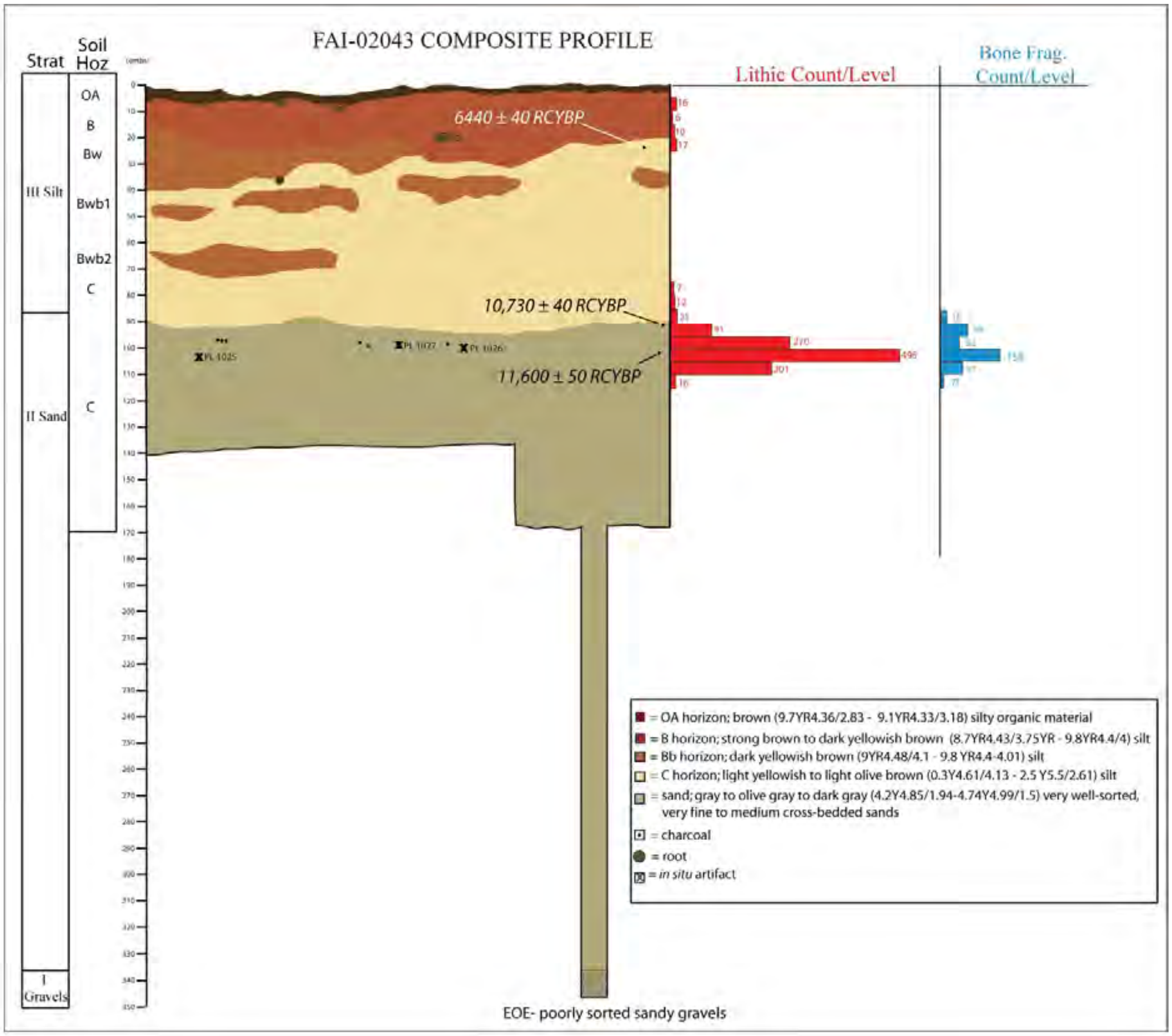

Figure 74. FAI-02043 composite profile

Discussion and NRHP Eligibility

While the sample from FAI-02043 is limited thus far, several robust inferences are possible. Cultural zone (CZ) 2 is coeval with Upward Sun River component C1, Broken Mammoth component CZ 4, the lowest Mead components, Swan Point CZ4, and four components in the Nenana Basin (Goebel et al. 1996; Goebel and Bigelow 1996; Hoffecker 1996; Holmes 1996; Pearson 1997; Potter et al 2008, 2010, 2011). The character of the lithic and faunal assemblages from this site is most similar to Broken Mammoth CZ 4 and Upward Sun River C1 with abundant lithic debitage and few formal tools. The presence of large and small game and waterfowl is also very similar to the Upward Sun River C1 and Broken Mammoth CZ 4 faunal assemblages and provides further evidence of broad-spectrum hunting strategies in late Pleistocene Eastern Beringia. The long bone breakage patterns and associated cobbles indicate marrow extraction. The presence of waterfowl suggests an early summer to fall occupation.

Site FAI-02043 is an intact, deeply buried prehistoric archaeological site with demonstrated integrity and cultural components that are among the earliest in Alaska and the entire North American continent. The spatial and stratigraphic integrity of the components, the presence of well-preserved identifiable fauna, and dateable organic remains indicates the potential to yield significant information on the earliest populations of Alaska and the New World, contributing to a broader regional and continental context. Site FAI-02043 is eligible under NRHP Criteria D for its potential to yield information important to understanding the prehistory of the region.

It is important to note that the site boundaries have not been determined, but are potentially extensive. Cultural deposits could occur across the entire 20,000 m^2 flat area on the top of the landform.

Given the NRHP eligibility and significance of the site and undefined site boundaries, if range development projects are proposed in the vicinity, a strategy to mitigate adverse effects to the site must be implemented. The first step of this mitigation should be properly defining site boundaries.

FAI-02044
Latitude: [redacted]
Longitude: [redacted]
Determination: Not Evaluated

Site FAI-02044 is located on a 20 m x 10 m finger that extends to the east/southeast from a north-south trending alluvial terrace edge at UTM coordinates [redacted] (Figure 75, Figure 76). Site elevation is 248 masl. The site has a 180° viewshed of the Tanana River Valley to the north. Two small ponds are visible to the northwest. The site area is generally level, while the adjacent terrace slope drops 10–15 m at approximately 35° to the valley below. The local landform is approximately 20 m wide north-south; drainages on both sides isolate it from the larger north-south running terrace.

The site ecosystem is characterized as upland moist mixed needleleaf/broadleaf forest (Figure 77). Site vegetation consists of mature aspen surrounded by mixed aged spruce and birch. The understory is alder, wild rose and low scrub, with a dense moss and lichen ground cover. Surface exposure is 0%.

Site FAI-02044 was found through subsurface testing. Cultural material was recovered from one of two test pits excavated. A single black (2.5/N) chert broken flake (UA2010-186), size class 10-20 mm, was recovered at a depth of 49-59 cm BS. Site stratigraphy consists of aeolian silts at least 100 cm thick; both test pits encountered frozen ground at 100 cm BS and were terminated at this depth (Figure 78, Figure 79).

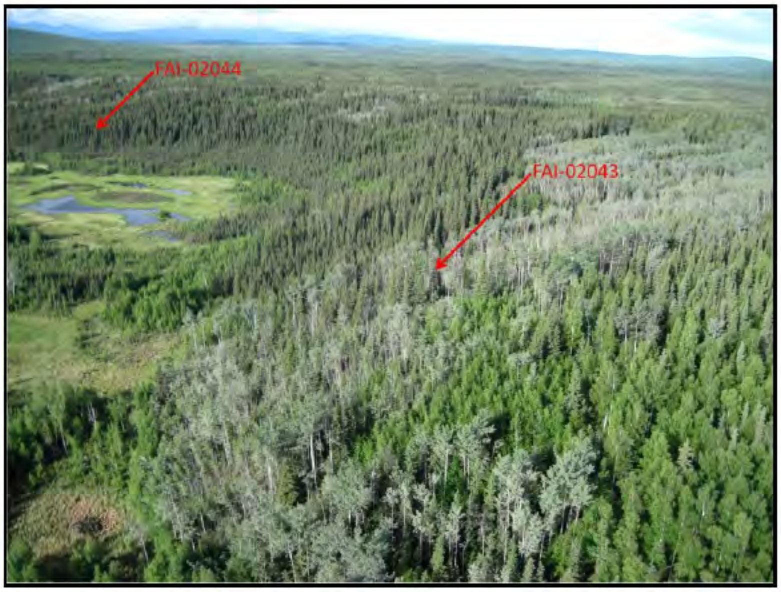

Figure 75. FAI-02044 aerial overview (view to southeast)

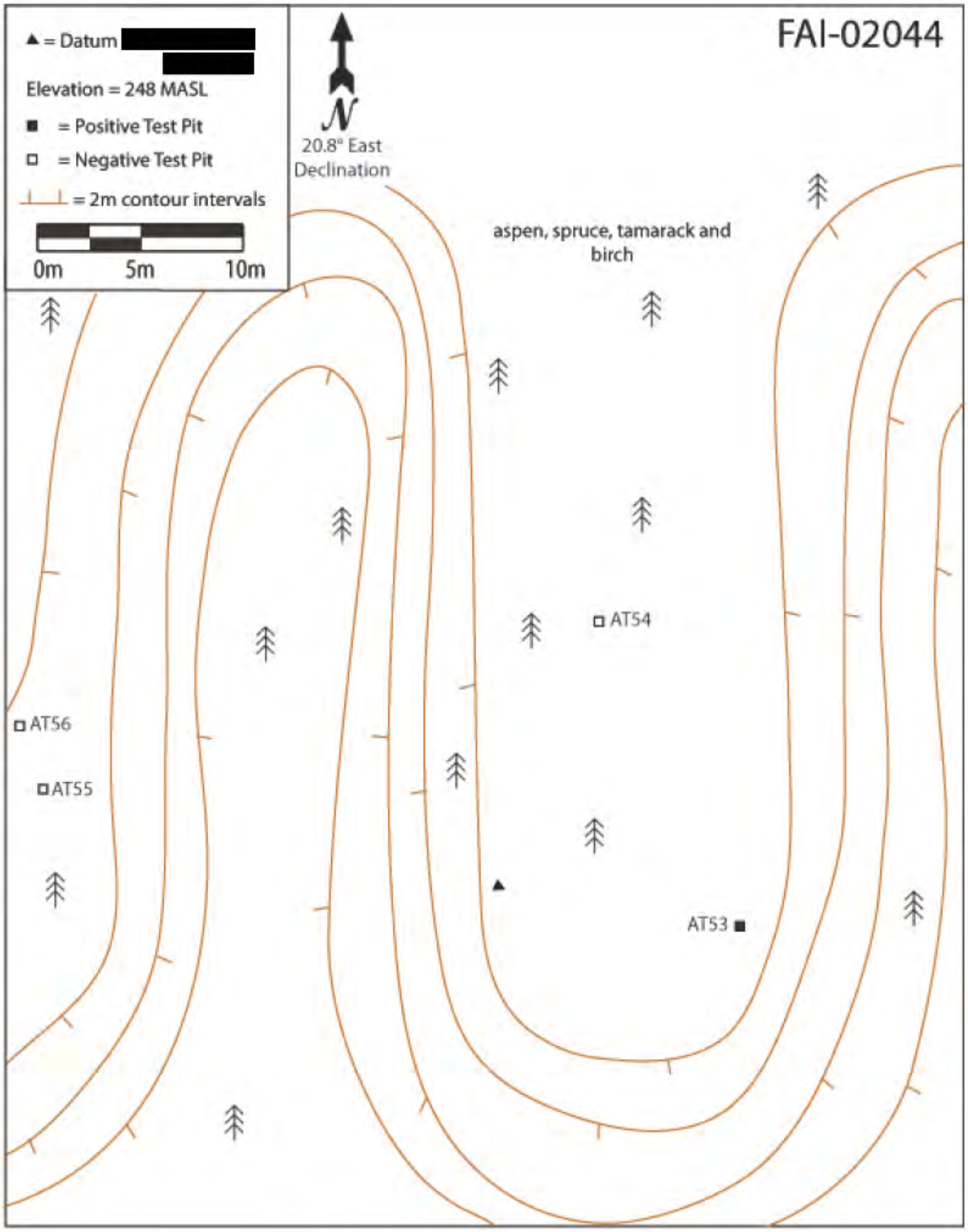

Figure 76. FAI-02044 sketch map

Figure 77. FAI-02044 overview (view to southeast)

Figure 78. FAI-02044 test pit stratigraphy

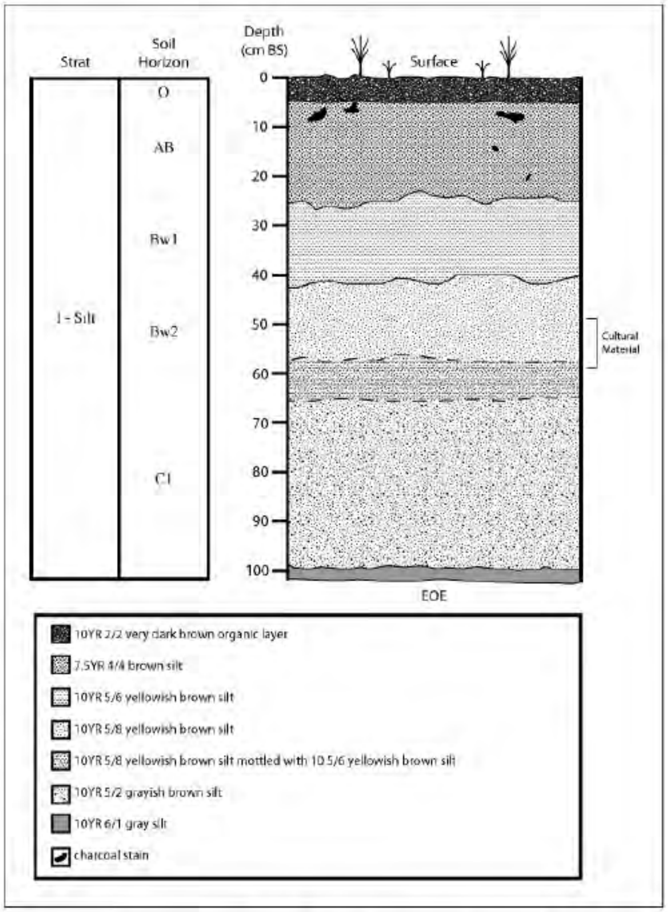

Figure 79. FAI-02044 stratigraphy

FAI-02045
Latitude: [redacted]
Longitude: [redacted]
Determination: Not Evaluated

Site FAI-02045 is located on the point of an alluvial terrace approximately 2.5 km southwest of Dry Creek at UTM coordinates [redacted] (Figure 80, Figure 81). Site elevation is 214 masl. The site area overlooks the Tanana River Valley to the east. The point is approximately 40 m wide with 30°-35° slopes on the north, south and east sides. West of the landform, the terrain slopes down at 5°-10° to a two-track 80 m distant. The site area and adjacent slopes are thickly wooded, obstructing any significant viewshed. The nearest source of water is an unnamed seasonal creek approximately 1.3 km to the northwest.

The ecosystem is characterized as upland moist mixed needle/broadleaf forest (Figure 82). Site vegetation consists of mature aspen, mixed aged spruce and birch, and a few very large cottonwoods. The understory is alder, wild rose and low scrub, with a dense moss and lichen ground cover. Surface exposure is 0%, except on the northern site border where exposed push piles are located.

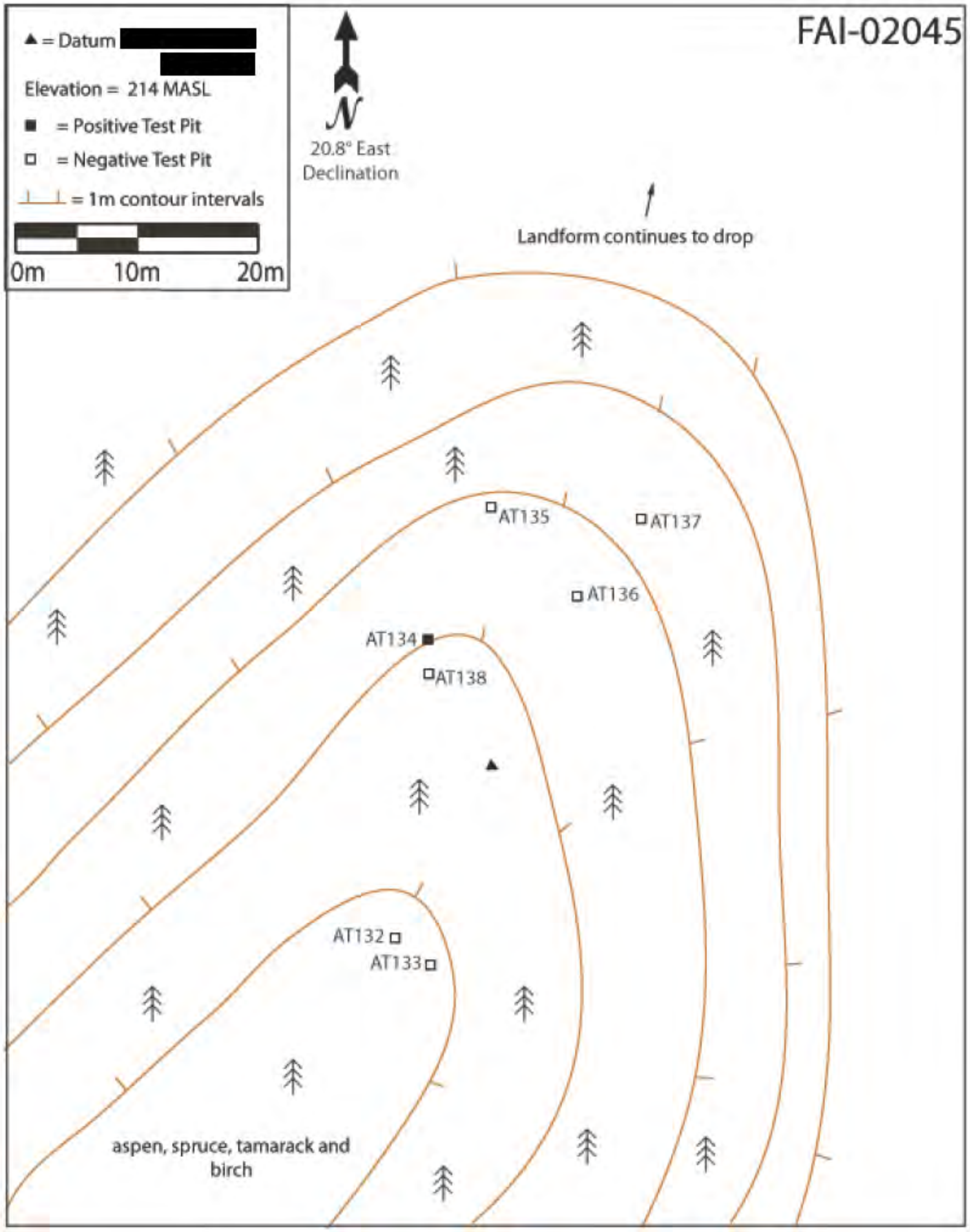

Figure 80. FAI-02045 sketch map