FINAL REPORT

ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF THE CAM-D INTERMEDIATE RADAR SITE AT SIMPSON LAKE, NUNAVUT (SUPPLY ARRANGEMENT EO211-054107/006/NCS)

Submitted to:
Public Works and Government Services Canada
Nunavut

Permit No. 07-034A

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EXECUTIVE SUMMARY

On September 6th and 7th, 2007, Golder Associates Ltd. (Golder) conducted an Archaeological Impact Assessment (AIA) on behalf of Public Works and Government Services Canada and Indian and Northern Affairs Canada (PWGSC/INAC) for the former Intermediate Distant Early Warning (DEW) Line site CAM-D Remediation Project at Simpson Lake, Nunavut. All required fieldwork was completed under an archaeological permit (07-034A) issued to D'Arcy Green by the Department of Culture, Language, Elders and Youth (CLEY), Nunavut.

The archaeological impact assessment for CAM-D was designed to identify heritage resource sites worthy of protection, further study or avoidance during remediation activities. The site area is located along an east-west travel winter travel corridor between Spence Bay and Pelly Bay (Canadian Circumpolar Institute; 1991) and appears to have been used as a location to fish and hunt caribou. Of primary concern was the possibility that much older archaeological materials could be present in areas scheduled for clean-up and that remediation activities had the potential to impact heritage resources. Therefore, the AIA was designed to identify any heritage resources in proximity to proposed remediation areas so that appropriate mitigation plans could be formulated. Areas chosen for inspection during the course of the AIA were limited to locations that had been previously identified for remediation, based on remaining surface debris and detected contaminated soils as described in. These locations were most typically associated with roadways, dismantled structures, machinery or refuse piles. Distance and the limited amount of surface debris meant that visitation to the furthest peripheral remediation areas was not cost effective at this stage. As such, one scheduled remediation area at the southeast shore of Simpson Lake was not included in this AIA. However, this location will be inspected prior to remediation of the area, concurrent with a scheduled visit to flag an identified Heritage Resource site for avoidance as discussed below.

The AIA resulted in the identification of one tent ring site, NdJl-5, which appears to be of relatively recent origin, based on the presumed association with manufactured items in close proximity. However, the tent ring may predate the items or may relate to traditional Inuit activities such as caribou hunting. As such, the site is recommended for inclusion as a heritage resource. The tent ring is located on the west side of a small freshwater lake, where a seasonal drainage feeds into the lake. The site was recorded, and will be flagged for avoidance prior to commencement of remediation operations.

By conducting this AIA study, it is recommended that PWGSC/INAC have fulfilled the objectives of the current program which were to identify archaeological resources which could be impacted during remediation activities at CAM-D and development appropriate mitigation strategies for individual sites as well as for the overall program. The AIA included the participation of Noah Kuluk and Joe Koaha, both of Cambridge Bay, who acted as wildlife monitors for the program.

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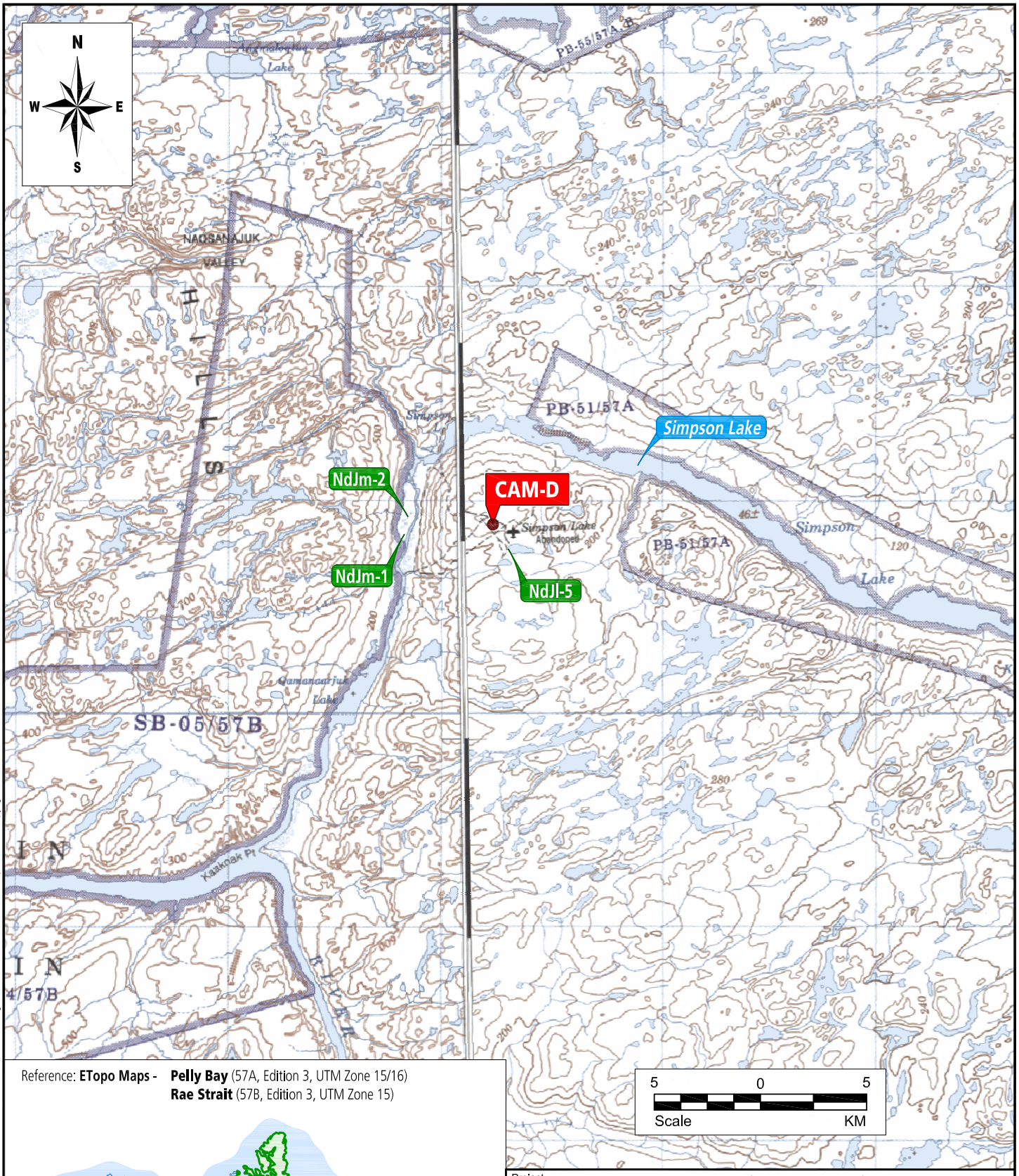
1 INTRODUCTION

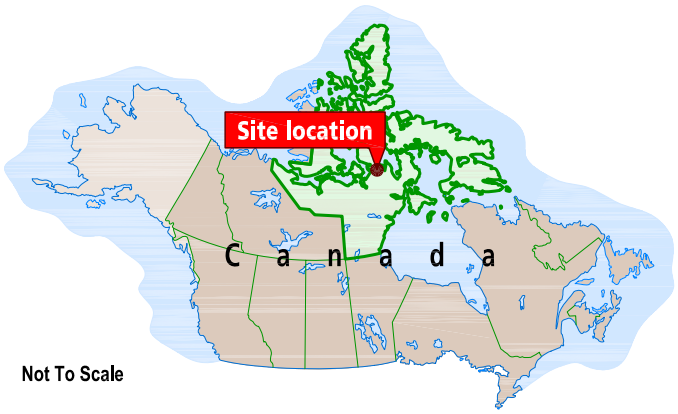
On September 6th and 7th of 2007, Golder Associates Ltd. (Golder) conducted an Archaeological Impact Assessment (AIA) on behalf of Public Works and Government Services Canada (PWGSC) under the direction of Indian and Northern Affairs Canada (INAC) for the former intermediate Distant Early Warning (DEW) Line site CAM-D Remediation Project, located at Simpson Lake, Nunavut (Figures 1 and 2). Built by the United States government in 1957 as part of a strategic defense initiative, CAM-D was an intermediate Distant Early Warning (DEW) Station set up to detect aircraft and missiles in the event of an air attack from eastern Europe. The site is located on the Boothia Peninsula, approximately 120 km east of Gjoa Haven (www.ainc-inac.gc.ca). The original CAM-D site was decommissioned in 1963, but was converted to a research station in 1977 (*Ibid*). Currently, however, the original location is no longer in use and is scheduled for extensive clean-up and remediation. In 1991, a new short range radar station site was built near the same location as part of the North Warning System (NWS) which is still in use.

Plans are currently underway for the removal of remaining debris at the CAM-D location (Plates 1 and 2). Much of this material is concentrated in a central core area that once contained numerous structures and buildings for accommodation and workstations. Today, only a garage is left standing, but is scheduled for removal along with the remaining radar station debris. All other buildings have been removed or completely destroyed. Other areas for remediation include large dumps, where 50 gallon barrels, vehicles and other refuse have been consolidated. Scattered debris covers a larger area. In order to complete the remediation program, four borrow sources have been identified southwest of the main station area, across the tributary which flows from the small fresh water lake into the river connecting Simpson and Qamanaarjuk lakes (Figure 2: Ka, b, c and d). Borrow sources A, B and C, the most westerly of the locations, respectively, are for sand and gravel extraction, while source D, the most easterly of the locations is identified as a potential clay source. The borrow sources, which were identified in Earth Tech Canada Inc.'s Remedial Action Plan, (2007) will be used in the event that clays and gravels are required to fill in deep excavations or replace contaminated soil matrices.

The purpose of the current AIA was to identify sensitive heritage locations that could be damaged during the remediation process in order to formulate appropriate mitigation and or avoidance strategies for these locations if heritage resources were identified within remediation areas during the assessment. One area of high heritage resource potential at the southeast edge of Simpson Lake was examined through multiple low-level aerial survey passes, but could not be accessed effectively from the ground. Plans are currently being formulated to visit the area in 2008 while flagging an identified heritage resource for avoidance.



Reference: **ETopo Maps -** **Pelly Bay** (57A, Edition 3, UTM Zone 15/16)
Rae Strait (57B, Edition 3, UTM Zone 15)



Not To Scale

Project

Public Works and Government Services
Archaeological Impact Assessment
CAM-D DEW Line Station, Nunavut

Title

Site Location Plan

Golder Associates
Edmonton, Alberta

Project No.		07-1328-0011	File No.		1731946
Design	DG	14/11/07	Scale	As shown	Rev. 0
Cadd	RW	14/11/07			
Check	DG	10/12/07			
Review	DB	10/12/07			

Figure: 1

Dec 10, 2007 (Mon 3:28 pm)

Images used: 57A.png - 57B.png -
Drawing path and name: N:\CAD\2007\1328\0011 - CamD\2000\4000\01 - 1731946 siteLocationPlan.dwg

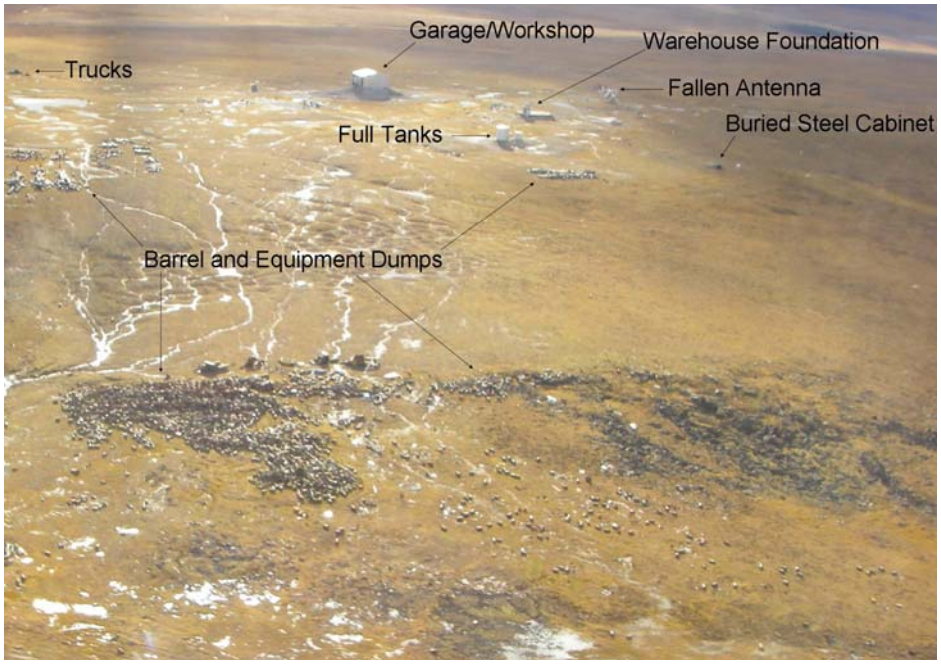


Plate 1 **View south toward concentration of structures and debris at CAM-D**

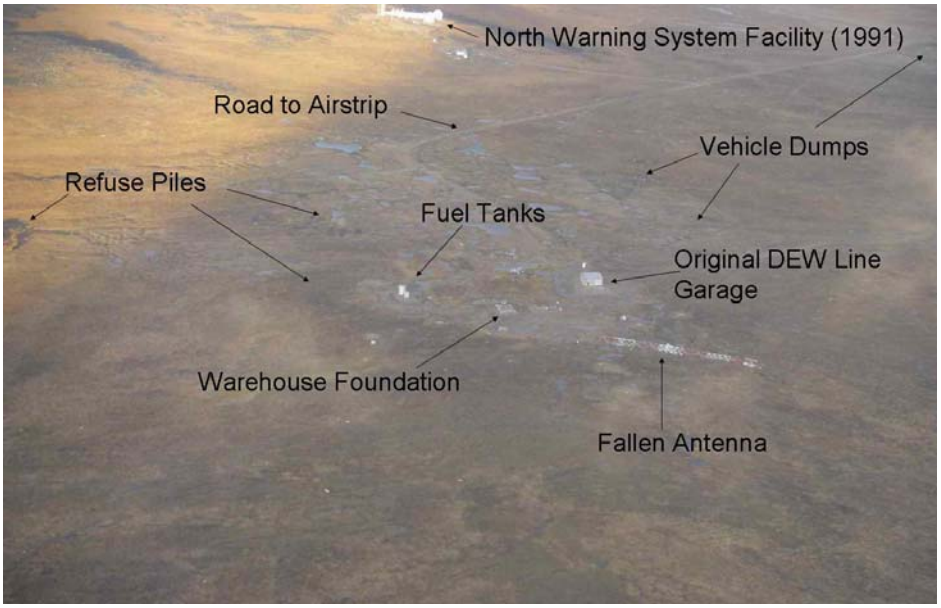


Plate 2 **View east toward CAM-D DEW Line station**

1.1 PREVIOUS STUDIES

Documents that were reviewed for the preparation of this report suggest that the avoidance of archaeological sites was one of several conditions placed upon the United States government as part of the original annexation program for construction of the DEW Line sites (Canada, Treaty Series 1953, No. 13 as cited by Lackenbauer et al. 2005). The following quote illustrates this point.

"No objects of archaeological interest or historic significance in the Northwest Territories or Yukon Territory will be disturbed or removed therefrom without first obtaining the approval of the Canadian Department of Northern Affairs and National Resources." (Ibid)

The quotation above indicates that efforts were made to protect heritage resources throughout the lifespan of CAM-D and other DEW line sites, suggesting that the potential to find intact cultural material that predated the CAM-D station was a possibility. However, if cultural materials had been discovered and/or removed from CAM-D during its operational phases, it is reasonable to expect that a government paper trail would exist, but, no such documents were identified during this study. Therefore, it is assumed that no cultural sites were identified in the six years that CAM-D was operational as a DEW Line site.

More recently, in 1991, two archaeological sites were visited and recorded in relatively close proximity to the CAM-D station by S. Rowley under permit NWT 91-717. Rowley's survey in the area was conducted in association of short range radar stations (Rowley 1992). Both sites are reportedly located along the unnamed tributary which flows south from the west end of Simpson Lake into Qamanaarjuk Lake before feeding into the Murchison River. The sites, NdJm 1 and NdJm 2, contain multiple tent rings and caches associated with historic metal objects although possible dates of occupation are not discussed. Upon speculating as to the nature of sites, Rowley (1991) has suggested that they were occupied to intercept caribou as they crossed the river. However, as the locations are reportedly situated well away from remediation areas, they were not revisited during the 2007 progarm and will be avoided during the remediation program.

2 PROJECT DESCRIPTION AND POTENTIAL IMPACTS

2.1 PROJECT DESCRIPTION

The proposed remediation of CAM-D will require demolition and removal of the remaining foundations, the garage/workshop facility and consolidation and removal several thousand used 50 gallon steel drums and other refuse. Clean-up will also involve the removal of discarded vehicles, heavy equipment, tools and building supplies. Of particular interest to heritage resource concerns will be the methods used for clean-up of contaminated soils, as required protocols may involve the excavation of contaminated materials, thus destroying heritage resources within contaminated matrices, if present. It is worthy of note, that no heritage resource sites were identified in areas believed to contain contaminated soils. Should heritage resources be identified during the remediation activities, the Nunavut government archaeologist will be notified as soon as possible so that appropriate mitigation can be devised. Some of the infrastructure, including the airstrip and portions of the existing roadways, will not be reclaimed, but will be left to service the North Warning System site built in 1991.

Prior to arriving on site for the AIA, focal areas for clean-up efforts had been delineated by PWGSC staff (M. McElwaine, pers.com.). The main areas of concern for the completion of the AIA at CAM-D include the following:

- The main CAM-D facility area, roughly centred around the remaining Garage/Shop;
- Several large refuse piles;
- Remains structures situated long road/trails networks;
- Four potential borrow source areas (three Sand and Gravel and one clay: see Figure 2 K a, b, c, and d);
- A designated freshwater lake area;
- Plumber's dump area; and
- A location near the southeast edge of Simpson Lake.

2.2 POTENTIAL IMPACTS

Heritage resources are nonrenewable and are susceptible to alteration, damage, and destruction by remediation activities. The value of heritage resources cannot be measured in terms of individual artifacts or biological specimens, rather the

value of these resources lies in the integrated information which is derived from the relationship of the individual artifacts and fossil specimens, associated features, spatial relationships (distribution), and contextual situations. Interpretation of heritage resource materials, and the ability to interpret the significance of particular sites in a landscape, is based on an understanding of the nature of the relationship between individual archaeological and palaeontological materials as well as the sediments and strata within which they are contained. As such, removal or mixing of cultural or fossil bearing sediments results in the permanent loss of information basic to the understanding of these resources. As a result, heritage resources are increasingly susceptible to destruction and depletion through disturbance.

Alteration of the landscape can result in the damage or complete destruction of all or portions of heritage resource sites. These alterations often involve the displacement of artifacts resulting in the loss of valuable contextual information, or may involve the destruction of the artifacts and features themselves resulting in complete information loss. These losses are permanent and irreversible. Primary, secondary and tertiary impacts are possible with any new development.

Primary impacts may include those disturbances resulting from remediation activities at CAM-D that require the use of heavy equipment. Direct disturbance of heritage resources is of concern if heritage resource assessment and management are not conducted prior to remediation or practiced following an AIA. Secondary impacts can occur when the support services or additional access required for a project adversely affects heritage resources outside the primary target areas. Tertiary impacts can result when increased development facilitates travel or visitation to a project area for other reasons such as recreation or hunting. While these examples are still possible during the remediation of CAM-D, PWGSC/INAC undertaken actions to eliminate or greatly reduce this possibility.

3 PROJECT OBJECTIVES

The objective of the 2007 study at the CAM-D Station site is to ensure that heritage resources are not inadvertently impacted by the proposed remediation project. The purpose of this AIA is to:

- conduct a pre-clean-up assessment of the proposed remediation/remediation areas;
- identify any archaeological sites within those areas (if present);
- make recommendations to CLEY and PWGSC/INAC on how to best mitigate disruptance and/or avoidance of those sites identified; and
- prepare a draft Final Report to be reviewed by PWGSC, followed by a Final Report for distribution as required.

Recommendations for avoidance of heritage materials and features will be communicated to PWGSC. These results, along with updates and recommendations will be included in written submissions to CLEY as required by the permit to conduct the AIA, and discussed with the Chief Archaeologist of Nunavut.

4 PHYSICAL AND CULTURAL SETTING

4.1 ENVIRONMENTAL CONTEXT

An understanding of past environmental conditions and the environmental factors that shape human approaches to subsistence and settlement patterns enable archaeologists to not only locate sites, but also to provide more accurate interpretations of individual sites. As such, the environment has influenced many of the activities that contribute to the character of the regional prehistoric record. The physical aspects of the environs (topography, drainage, climate and soils) as well as resource availability (flora, fauna, lithic materials and water) are primary considerations for identification of site location and function. Therefore, all available environmental variables must be considered as indicators of prehistoric use of the landscape.

Some generalizations regarding cultural preferences for site selection, travel routes throughout an area, and resource exploitation are key components of any archaeological site analysis and interpretation. Therefore, the environmental variables of archaeological site distribution can be identified and combined into useful criteria for suggesting the potential of an environment to hold heritage resources. Commonly associated with archaeological site locations are a wide variety of landforms such as coastlines and lake shores, river banks, eskers and kames, and bedrock knolls in Arctic environs. Distribution patterns partially reflect environmental opportunities presented to human groups as well as cultural preferences demonstrated by site location.

4.2 LOCAL ENVIRONMENT

Prior to European contact, the people of North America developed economies that were intimately linked with the landscapes in which they lived. Changes in the vegetation communities have occurred throughout the region over time and the productivity of the landscape and how it was culturally manipulated in the past has changed.

The surficial geology around Simpson Lake consists of a till veneer forming ridged terrain with numerous lakes and basins. Exposed ridges and embankments of dark grey bedrock that erode into rugged concentrations of large boulders are visible at several locations at CAM-D and throughout the region. The area features typical sparse tundra vegetation including varieties of lichens and short grasses on elevated areas, with saturated grasses and boggy vegetation in low-lying areas. Much of the CAM-D site location sits atop a large east-west trending ridge. Numerous abandoned trails for heavy equipment run down in several

directions to various small lakes that surround the site. One small herd of five caribou was observed grazing adjacent to the site and an arctic fox approached the crew during the survey. Waterfowl was observed on a small freshwater lake adjacent to the site. According to information provided in the *Nunavut Atlas* (Canadian Circumpolar Institute, 1991), the Simpson Lake area forms part of a travel corridor used each winter by residents of Spence Bay and Pelly Bay. The travel route appears to pass directly through the CAM-D site location. In addition, the atlas identifies the west side of Simpson Lake as a fishing site, but further indicates that much of general region is of little use for resource harvesting other than for hunters in pursuit of caribou and those trapping arctic fox in the past.

4.3 HERITAGE RESOURCES

Archaeology is the study of human history through the material remains of culture: now known as heritage resources. The ultimate goal in archaeology is to describe the cultures and events responsible for the creation and deposition of the remains at a given archaeological site. As such, archaeologists use material remains to determine the nature and age of cultural occupations at a site. Artifacts, ecofacts and features deposited into the natural environment, along with their inter-relationships, are the integral parts that make up an archaeological site. The Nunavut Archaeological and Palaeontological Sites Regulations (2003) define heritage resources as:

"but not limited to, archaeological and historical sites, burial grounds, palaeontological sites, historical buildings and cairns."

Predating the arrival of Europeans, Precontact archaeological sites are comprised of artifacts, features, and residues of human origin typically characterized by modified bone and stone, including stone, wood and bone structures. Historic sites are those structures, features, and objects of European (or Euro-Canadian) origin or influence and may date back to initial contact with the Europeans but can also represent more recent activity of more than 50 years. Sites less than 50 years old are frequently considered Heritage Resources if they reflect traditional Aboriginal activities and are identified to document continued use and occupation of an area to the present time. These include both archaeological sites and objects such as standing and collapsed cabins, campsites, graves, and traditional sites and resources, such as special places, hunting and plant collecting areas, traplines and their associated remains, oral traditions and various documents. Traditional resources use locations are usually identified through consultation procedures such as those conducted for CAM-D in 2006 at Tlaoyoak, Gjoa Haven and Kugaaruk which attempted to explore the present and historic connection to the Simpson Lake area. Consultation with these

communities will continue throughout the remediation activities (S. Nobrega pers. com. to D.Green Dec 4th, 2007).

With respect to the current study, the historic significance of the DEW Line program and the remaining northern stations must be considered high, perhaps as an integral part of *world history*, but the condition of the CAM-D is such that it is not currently considered a viable location to warrant protection or preservation relative to other locations which may be in better overall condition.

In addition to the sites where events took place in the past, heritage resources include all of the objects that they contain and any of the contextual information that may be associated with them and will aid in their interpretation, including natural specimens and documents or verbal accounts.

Palaeontological sites include those sites bearing evidence of multi-cellular invertebrate, vertebrate faunal remains, as well as plant materials that have been fossilized or otherwise preserved. These can include fossils, bone deposits, shells and the impressions of these remains and can occur in both bedrock and unconsolidated glacial and post-glacial sedimentary deposits.

Tundra areas north of the tree line are characterized by extremely slow rates of soil development and sediment accumulation. Accordingly, at repeatedly occupied sites, there is little chance of distinguishing occupations relating to different periods within the 8,000 year record of human occupation in the region without recovering a diagnostic indicator. Some areas of higher sediment deposition rates are present in low-lying areas around the periphery of the study area (i.e lake shores and river terrace structures), but these are not the typical scenario.

The lack of temporally diagnostic artifacts, the limited amount of materials suitable for radiocarbon dating, the poor separation between multi-component archaeological deposits and the overall sparse nature of the cultural record, coupled with a low number of documented sites due to a low volume of heritage resources research, combine to limit our knowledge of the prehistory for the Netsilik region of Nunavut. In essence, the cultural chronology of the region is still, somewhat at least, in its formative years. In contrast, extant documents, records, and oral testimony provide a firmer basis for understanding the historic period of the region.

4.3.1 CULTURAL CHRONOLOGY

The diverse landscape of Nunavut has yielded a substantial variety of archaeological materials ranging from artifacts associated with highly specialized coastal subsistence practices related to marine mammal exploitation to sites and artifacts that express a strong reliance on terrestrial resources such as caribou, muskox and bison. The schemes devised for grouping the past cultures of Nunavut reflect this variation and, consequently, are derived from northern coastal cultural complexes referred to as 'Palaeo-Eskimo' cultures and southern boreal forest/plains/shield cultural complexes which relate to ancestral Athapaskans and Palaeo-Indians. While similar scenarios exist throughout North America wherever transitional zones occur, it necessitates a relatively lengthy discussion with respect to the culture history of the region. Archaeological materials in Nunavut represent human activity after the ice sheet receded from the area about 8,000 years ago. The following discusses the Cultural History of Eastern Nunavut beginning with the earliest known occupations of Palaeo-Indian origin in Southern Nunavut.

Northern Plano Culture (approximately 6000 BC to 5000 BC)

Gordon (1996) has described very early cultural deposits toward more southerly, interior areas of Nunavut, associated with the Barrengrounds and Boreal Forest. Lanceolate Agate Basin-like projectile points have been recovered from sites in the interior region near Dubawnt and Grant Lakes. These materials, referred to as "Northern Plano", are thought to represent late expressions of the Palaeo-Indian Period with implied connections to the Plains. Additional artifacts include scrapers, wedges, biconvex bifacial knives, chithos, saws, whetstones, hammerstones, cores and adze-like tools. Gordon speculates that the subsistence focus of Northern Plano Culture was a shift from bison/plains to caribou/boreal forest which occurred around 8000 years ago. Like the Palaeo-Indian bison hunters of the day, Gordon speculates that the Northern Plano people likely lived in highly mobile units that followed the herds rather than developing multifaceted subsistence practices that were somewhat independent from them. Wright (1981), however, suggests that the Northern Plano presence is the result of seasonal forays into the area to hunt Caribou at strategic points and perhaps fish. Most recorded sites from this period occur in close proximity to waterways such as the Dubawnt and Thelon rivers and waterbodies such as Grant and Dubawnt lakes, but it was during this cultural return to the north that the Barrenground adaptations that are still in place today began to emerge. Relatively common removal of a burin spall on the edge of a projectile points to make burins and gravers, supports the idea of increase use of bone and antler for tools.

Shield Archaic Tradition (4500 BC to 1500 BC)

The Shield Archaic has many attributes that suggest cultural continuity with the Northern Plano Culture (Gordon 1996 and Wright 1995). The construct is typically subdivided into Early, Middle and Late phases which are each associated with slightly divergent projectile point styles. The timespan for the tradition roughly corresponds to a period of increased mean annual temperature known as the Altithermal, which is known have triggered a northward treeline advance, higher annual rates of precipitation and equal rates of evaporation (Gordon 1996). Shield Archaic projectile points are predominantly side-notched with a noted trend toward lengthening through each successive phase. Site location and distribution along with similarities in some artifact forms suggest a link to earlier Northern Plano materials. Like the Northern Plano materials, Shield Archaic sites are believed to represent groupings of people that followed the caribou in their seasonal round.

Interestingly, it is during the Shield Archaic Tradition that Pre-Dorset caribou hunters (see below) spread along the coastline and the islands of Eastern Arctic and, indeed, inland as far south as northern Saskatchewan (Gordon 1996). The climatic changes toward the end of the Altithermal caused a southward retreat of the treeline and with that came an apparent southward movement of the Shield Archaic Tradition into northern Manitoba in what Wright (1995) refers to as the 'Middle Shield Contraction'.

Arctic Small Tool Tradition (2400 BC to 800 BC)

The Artic Small Tool Tradition (ASTt) represents a widespread cultural manifestation that covers all of the Canadian Arctic as well as parts of Alaska and Greenland. The ASTt is a conglomeration of several related archaeological cultures, each containing finely-made, exceptionally small chipped and polished stone implements many of which were used as components of composite tools. All known variations of the ASTt are believed to have Alaskan ancestry (although some scholars point to a Siberian origin) from which the Independence I Culture spread north and eastward toward Greenland, the Pre-Dorset Culture spread eastward across the southern Arctic islands, the mainland arctic coast and the Barrenlands, while the Denbigh Flint Complex developed *in situ* in the Alaskan homeland. Because of a perceived link with the first recognizable 'Eskimo' cultures, this has been termed the Palaeo-Eskimo Period (Odess 2005).

Independence I Culture (2400 BC to 1800 BC)

In the northern islands, the Independence I Culture forms the earliest evidence of human occupation. Independence I is believed to have spread very quickly from the west around 4400 years ago (Knuth 1954 as cited by Fog Jenson 2005). While it is certain that Independence I peoples had a varied subsistence with

some reliance on marine mammals, fish and birds, the primary focus appears to have been muskox hunting (Fagan 1995, Fog Jenson 2005). Independence I toolkits include harpoon heads, microblades, burins and bifacial points with a tapered stem.

Pre-Dorset Tradition/Canadian Tundra Tradition (2400 BC to 600 BC)

Pre-Dorset is the Central eastern Arctic variant of the ASTt. Material culture indicates that Pre-Dorset people were highly adaptive, exploiting sea mammals, fish, birds and terrestrial animals with equal prowess. In spite of the Arctic environment and evidence for the use of dogs, there is no firm evidence to support the use of sleds (Desrosiers 2005). Further, it appears that exploitation of marine resources including beluga whale, walrus, narwhal and seal was likely staged from breathing holes in the ice or from the shoreline with very little evidence of any support from boats.

The arrival of Pre-Dorset Culture to its most southerly extent in northern Manitoba, Saskatchewan and Alberta and southern Nunavut appears to have occurred around 1500 BC (Gordon 1996), perhaps several hundred years after it's initial rapid movement into the Eastern Arctic's coastal regions. Gordon (1996), Wright (1995) and McGhee (1997) speculate the migration inland was in response to a prolonged cold period which may have resulted in unfavourable hunting conditions on the coast. It appears likely that the Barrenland Pre-Dorset Tradition/Canadian Tundra Tradition represented an influx of highly adaptive peoples with subsistence practices which relied heavily on shoreline resource exploitation but who may have lacked sea ice hunting technology. This migration into the interior Barrenland/Boreal Forest margin in pursuit of caribou (Wright 1995, Gordon 1996, Noble 1981) occurred as coastal resources became less accessible due to adverse weather conditions (McGhee 1997, Fagan 1995). The speculated primary hunting technique for caribou was to lie in wait and dispatch the animals with bows and arrows and lances at known crossing locations along rivers and other 'pinch points' along their highly predictable migration routes. While other techniques, such as the use of pounds, may have been utilized, insufficient research has been conducted to clearly demonstrate this pattern (Wright 1995).

The most noteworthy artifacts to survive the archaeological record are small, skillfully-made stone tools, which represent variants of the Arctic Small Tool tradition (ASTt). The sharp and durable attributes of chipped stone made it ideal for use as replaceable cutting and piercing edges and tips that could be affixed to bone, ivory and antler implements such as harpoon heads or slotted knife handles, while the use of carveable bone, antler and ivory allowed for considerable variability and intricacy in the completed compound tool's shape. This also allowed a toolmaker to minimize the use of stone required for given

item through an extremely efficient production method of producing microblades. Noble (1981) notes the use the brightly coloured cherts and white quartzites, suggesting that stone for tools may have been selected partially based on it's colour. Interior variations of Pre-Dorset cultural material may be surprisingly similar to the coastal materials, except for the fact that the wood, bone, antler and ivory portions of the compound tools have not survived the acidic soils of the Boreal Forest. Interior tool kits often include bi-pointed and triangular endblades, sideblades, small side-notched projectile points, microblades, microblade cores, drills, spurred scrapers, ground adzes and ovate bifaces. The presence of wood-wrking tools such as drills and adzes suggest that the forest played a vital role in survival (Noble 1981). Technological innovations of this period include the introduction of the bow and arrow from Asia.

Dorset Culture (800 BC to AD 1300)

The emergence of the Dorset Culture is believed to have been a development out of Pre-Dorset, with a wider distribution and eventual expansion into northern Greenland (Fog Jensen 2005). Late Dorset cultural materials include carved figures of polar bears, birds, seals, walrus and other animals in natural positions such as swimming polar bears. Others are near perfect miniature portraits of animals (McGhee 1997). Dorset appears to have been a more successful adaptation to the conditions of this region than the preceding ASTt cultures from which it developed. This is demonstrated by the huge area occupied by Dorset groups and by evidence that they had perfected winter hunting on the sea ice. However, when the people of the Thule culture arrived in the Canadian Arctic approximately 1000 years ago, the Dorset culture had largely or entirely disappeared for reasons that are not well understood (McGhee 2001; Wright 1999). Dwellings include tent rings, semi-subterranean houses and very large communal longhouses (Fog Jensen 2005). Oddly, in spite of the close proximity and temporal spans which overlap with Indian groups, Dorset cultural materials show no evidence of interaction with them. However, some Dorset sites do contain Norse artifacts (*Ibid*).

Taltheilei Tradition (500 BC)

Around 2500 years ago, a terrestrial-focused subsistence tradition known as Taltheilei moved into southern Nunavut from a homeland in the Great Bear Lake area. The Taltheilei tradition is believed by many to represent an incursion of ancestral Dene caribou hunters into the transitional forest-tundra region. Artifacts types differ from ASTt materials assigned to Pre-Dorset in that the manufacture of end and side blades associated with composite project points such as harpoon heads has all but disappeared in favour of side-notched and lanceolate points made entirely of chipped stone. Taltheilei sites also feature ground stone items such as whetstones, but technologically, the Taltheilei are believed not to have

made widespread use of the use of the bow and arrow until sometime around 500 AD (Noble 1981).

Thule (AD 1,000. to AD 1600)

The Thule tradition dates from approximately AD 1,000 to AD 1600 and is derived from the Norton tradition in northern Alaska. More specifically, Thule grew out of the Old Bering Sea and Punuk traditions, which have numerous similarities to Thule cultural assemblages. The introduction of Thule into the Canadian Arctic is noted by a distinct change in a number of cultural markers from the Dorset culture. In Canada, the Thule replacement of the Dorset culture is poorly understood.

The Thule adaptation is based on maritime resources such as seals and whales that were hunted from kayaks or umiaks as identified by harpoon floats and other tangible materials recovered from archaeological sites. Thule culture also marks the introduction of the use of sled dogs. Winters were spent in small groupings of semi-subterranean houses with raised sleeping platforms made from stone and whalebones. The earliest Thule occupations currently recognized are on islands in the Bering Strait and exhibit an almost complete reliance on maritime resources; however, later sites demonstrate that both maritime and terrestrial resources were utilized (McGhee 1990). Climatic changes following the thirteenth century likely caused the Thule to modify their way of life into that of the various Historic Inuit groups.

4.3.2 HISTORIC INHABITANTS

Historical use of the project area is identified with the ‘Netsilik’. The territory is largely comprised of the Boothia Peninsula, but extends westward to the Perry River and eastward as far as Repulse Bay, with a northern limit at or around Bellot Straight and a southern limit around Garry Lake (Balikci 1984). Traditionally in summer, the Netsilik resided in tents made from seal and caribou skin and, in winter, igloos made from snow and ice. Their seasonal rounds included winter activities focused on: breathing-hole sealing along the ocean edge; summer economic exploitation of the interior tundra including caribou hunting, fowling, and fishing; caribou hunting in late summer; intensive fishing for arctic char in the fall; and, a return to the coast to rebuild the winter snow villages to begin hunting seals at breathing holes again. Muskox was occasionally hunted in the Fall and Winter with the aid of dogs (*Ibid*).

For the manufacture of tools, transportation, shelter and clothing it was essential that materials of wood, antler, bone, sealskin, stone and caribou hide were acquired. Caribou hide was primarily used for the manufacture of clothing with

the exception of boots and kayaker's jackets of sealskin. Typical utensils included wooden snow shovels, soapstone lamps, snow knives, fishing leisters, barbed harpoons, bows, arrows and so on. Like many Inuit groups, games of skill and strength are firmly entrenched in the culture.

4.3.3 HISTORIC CONTACT

Trading contacts between Europeans whalers and Netsilik occurred near the end of the 19th century in Northwest Hudson Bay. However, it was not until the early 20th Century that Trading posts were established within Netsilik territory. Rifles, traps, fishing nets and boats were commonly traded items. Guns made hunters less reliant traditional methods of lying in wait at caribou crossing locations and fishing nets led to the abandonment of fishing with leisters or the construction of weirs. The use of guns reportedly impacted caribou populations and distribution significantly enough to cause other cultural shifts away from the heavy reliance on caribou (Balikci 1984). Further, the new technologies negated the need for communal hunts as men could now hunt alone. This led to a decrease in traditional meat-sharing practices and an overall restructuring of social units (*Ibid*).

5 METHODOLOGY

5.1 PREFIELD ASSESSMENT

Prefield approaches used for the CAM-D AIA included the submission of an Application for a Class 2 Archaeological Permit, a review of information regarding previously identified archaeological sites in the immediate vicinity of the CAM-D site and preliminary screening of archaeological site potential based on topographic features and areas of previous disturbance. The review included a records search of the archaeological site database maintained by the Canadian Museum of Civilization (CMC). The search included the entire CAM-D footprint as well as a buffer zone that extended approximately two kilometres beyond the proposed remediation areas. Previously identified archaeological sites were then plotted using the reported coordinates in order to determine their proximity to the proposed remediation activity areas. Inclusion of the buffer zone was considered important in order to help identify local site distribution patterns and determine archaeological resource potential of the immediate CAM-D site.

5.2 FIELD ASSESSMENT AND SITE INVENTORY

All field assessment work and reporting was conducted under the aforementioned Class 2 Archaeological Permit issued to D'Arcy Green by CLEY. The field program consisted of low–level aerial reconnaissance of the CAM-D site location, followed by on-ground pedestrian traverse, All Terrain Vehicle (ATV) survey and visual examination of areas that are proposed for remediation and, if necessary, shovel testing to assess for the potential for specific locations to contain buried resources. Additionally, any unrecorded sites in the immediate area of CAM-D were to be assessed and recorded as required by CLEY. All newly identified sites were to be flagged for identification, photographed, and GPS coordinates recorded. Site forms for new sites would be prepared and submitted to the Canadian Museum of Civilization to obtain the correct Borden number designation and supply the museum with a record of the site for their national database. In the event that artifacts were collected, each would receive an individual specimen number and be bagged with all applicable information for analysis, before being passed on to the project's archaeological curator. Public Works and Government Services Canada agreed that avoidance of all archaeological sites would be the preferred mitigation method during clean-up activities. Operation in and around sensitive areas could be accomplished using low-impact clean-up methods such as avoidance of sensitive areas with heavy equipment and hand-collection of refuse.

As the CAM-D site is considered to have historical significance based on its role in 20th Century world history, an evaluation was completed of the remaining historic structures and debris in the event that any of the remains were worthy of future preservation or protection. These evaluations were based on a number of criteria including integrity, completeness, original use and historic importance as a component of the larger site.

The evaluation of significance of archaeological resources is a complex issue which requires a solid understanding of archaeology as well as input from a number of sources including local community members and regional experts such as government regulators. Generally speaking, greater significance is given to sites which can provide good contextual information for artifacts and features or sites which contain particularly rare cultural phenomena. The highest levels of significance are typically associated with sites which contain evidence of repeated occupations with good vertical separation. However, other criteria which can influence the evaluation of significance could include sites which are outside of their typical distribution, or sites which represent unusual or previously unrecognized cultural activities.

Prior to arrival on site, focal areas of study were identified in consultation with PWGSC staff in order to reduce the amount of time and effort required to complete the AIA program. Wildlife monitors from Cambridge Bay, arranged through PWGSC/INAC, accompanied the archaeological crew during the assessment. No large-scale mitigation of sites, such as excavation, was to be conducted during this AIA. However, isolated finds or small scatters could be collected as an appropriate mitigation strategy at the discretion of the permit holder. A management plan is to be developed and submitted to PWGSC/INAC and CLEY based on the results of the 2007 study.

5.3 REPORTING

The final report on the project include detailed descriptions of each individual site identified, site locations, and site contents and the locations investigated. Collected artifacts would be cleaned, catalogued and described to provide the context for local technology and site use. Based on the cultural material collected, a recommendation regarding final site disposition relative to future projects would be made. However, in this case, no artifacts were collected during the program.

Should site avoidance become an issue, then site mitigation will be discussed with the communities (Taloyoak, Gjoa Haven and Kugaaruk,), PWGSC/INAC and CLEY. Normally, disturbed sites with limited cultural remains are assigned

lower archaeological resource values than undisturbed sites, large sites with large amounts of cultural material, complex sites, and multi-component sites. Undisturbed multi-component sites are generally assigned the highest archaeological resource value. Based on the review of archaeological resource potential at CAM-D, all of these possibilities could be present.

In general, the following workplan is followed:

- Avoidance will be recommended if feasible at all sites assigned high archaeological resource value (this to include all constructed features: burials, tent rings, caches, hunting blinds, hearths etc.).
- Collection and documentation will be undertaken as a mitigative option of sites with low archaeological resource value, or isolated artifacts, as a method of protecting the heritage resource from future undocumented impacts due to increased personnel activity in the vicinity.
- Mitigative excavations, including mapping, collection and test excavations, will be recommended at those sites assigned high archaeological resource value that could not be avoided by clean-up and remediation activities, and discussed with CLEY and the Chief Archaeologist as to the acceptable methods of mitigation.

A management plan for required mitigation, monitoring or surveillance relative to the proposed remediation program will be developed as part of the contracted services deliverable to PWGSC. This could include site mitigation, additional survey of any project remediation areas not visited in 2007.

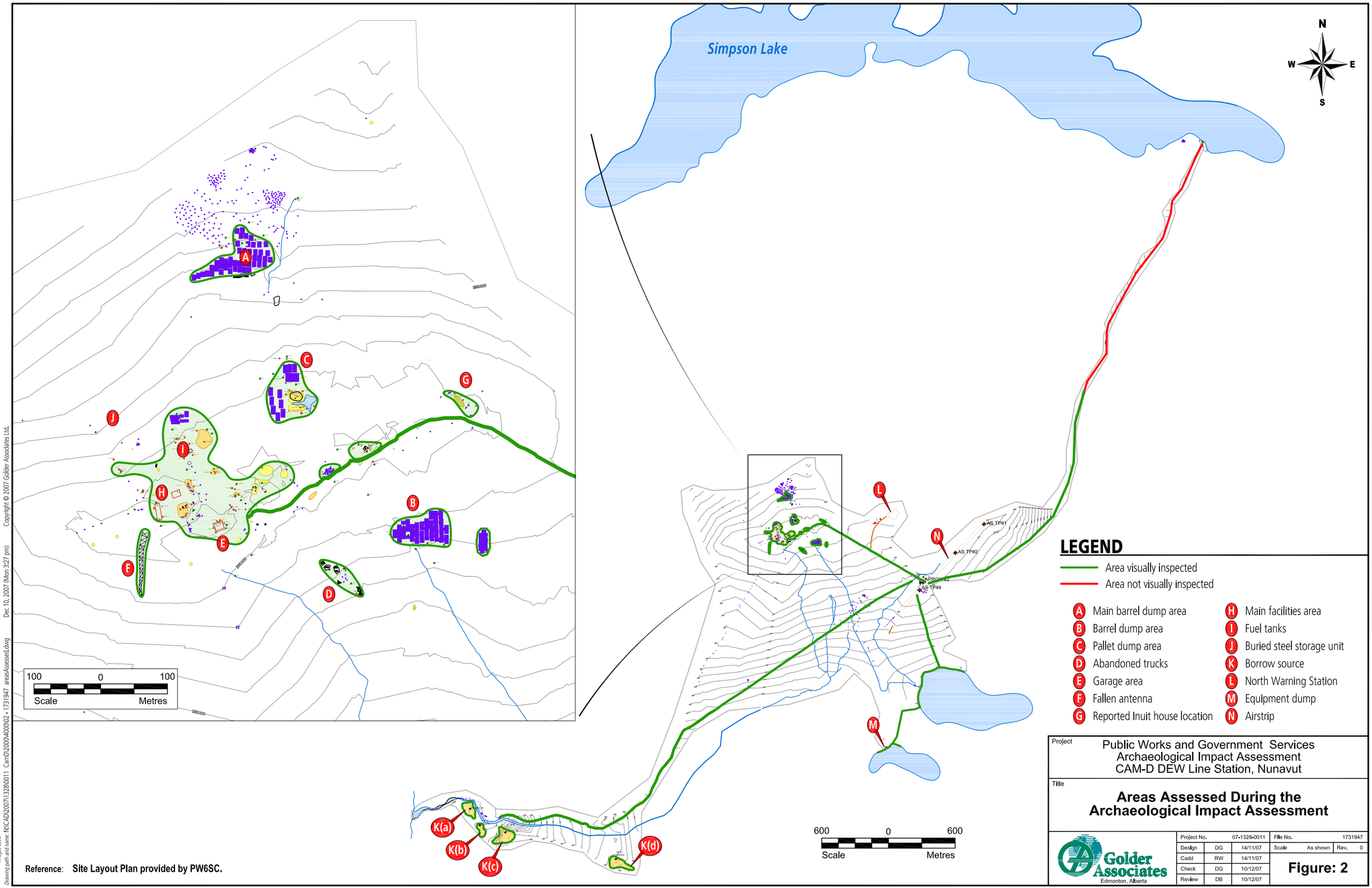
5.4 COMMUNITY CONSULTATIONS

No prior communication with community members at Taloyoak, Gjoa Haven or Kugaarauk was undertaken prior to commencement of the AIA. However, community consultations were conducted by PWGSC/INAC in April of 2007 with each of these communities with to the CAM-D remediation program.

6 RESULTS

The archaeological impact assessment of CAM-D was conducted under Class 2 Nunavut Archaeologist Permit 07-034A, issued to D'Arcy Green of Golder. Prior to visiting CAM-D, a site file search of the Canadian Museum of Civilization Site Inventory Database indicated that no archaeological sites had been previously recorded within the boundaries of the project area, but two sites (NdJm-1 and NdJm-2) were recorded above the river flowing south from Simpson Lake in the general vicinity of CAM-D (Figure 1). Interpretation of these sites suggested that both were likely associated with caribou hunting camps located at important herd crossing routes along the river. Coordinates for each of the sites and site location descriptions indicate that they are both located outside of the study area and should not be impacted by clean-up activities. Consequently, neither site was revisited during the current program..

Two low-level aerial surveys of the area were conducted. The first served as a general orientation of CAM-D and provided an excellent overview of the terrain and debris. The second included four passes of the southeast corner of the Simpson Lake shoreline in an area that was not be assessed during the current permit, despite efforts to the contrary (see below). However, this area will be assessed prior to commence of remediation activities when identified heritage resources are flagged for avoidance. Specific target areas were identified prior to arrival on site in order to increase efficiency of the field program. Logistically, the field program needed to be completed in conjunction with a scheduled visit to the site organized by PWGSC/INAC which was to consist of a day on site, but arrangements were made for a second day on site so that the AIA could be adequately addressed. The discussion below presents information on each target area.



LEGEND

- Area visually inspected
- Area not visually inspected

- A Main barrel dump area
- B Barrel dump area
- C Pallet dump area
- D Abandoned trucks
- E Garage area
- F Fallen antenna
- G Reported Inuit house location
- H Main facilities area
- I Fuel tanks
- J Buried steel storage unit
- K Borrow source
- L North Warning Station
- M Equipment dump
- N Airstrip

Project: Public Works and Government Services
Archaeological Impact Assessment
CAM-D DEW Line Station, Nunavut

Title: **Areas Assessed During the Archaeological Impact Assessment**

Reference: Site Layout Plan provided by PW6SC.

Golder Associates
Edmonton, Alberta

Project No.	07-1328-0011		File No.	1731947	
Design	DG	14/11/07	Scale	As shown	Rev. 0
Cadd	RW	14/11/07			
Check	DG	10/12/07			
Review	DB	10/12/07			

Figure: 2

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Images used:
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6.1 AREA A: MAIN BARREL DUMP

The Main Barrel Dump consists of several thousand empty 50 gallon fuel drums located approximately 300 metres north of the remaining CAM-D garage structure (Plate 3). The dump is situated downslope from the main habitation and control centre area and is largely consolidated, but a number of barrels have moved further downslope toward Simpson Lake (Figure 2). While time did not permit a thorough examination of the entire Main Barrel Dump area or the debris field that had moved downslope, visual examination of the area did reveal that main area had experienced surface disturbance resulting from use of the area. The visual examination was conducted using pedestrian transects of the perimeter of the main concentration by two archaeologists. No Precontact archaeological materials were observed in this area and the likelihood of identifying archaeological materials beneath the barrel dump was considered extremely remote.

Several interesting vehicles and large pieces of equipment at the dump area have settled into the permafrost. However, the poor condition of all of the vehicles at CAM-D suggests that they should be regarded as scrap metal.

6.2 AREA B: SECONDARY BARREL DUMP

The Secondary Barrel Dump area is located approximately 250 metres due east of the CAM-D garage facility (Figure 2). The dump site consists of over one thousand 50 gallon fuel barrels stacked and organized into numerous rows. The area was visually inspected for the presence of significant archaeological resources, but none were observed.

6.3 AREA C: PALLET DUMP

The Pallet Dump is located northeast of the main CAM-D facilities and consists of several pieces of heavy equipment and numerous pieces of steel conduit, scrap iron and organized units of scrap. The area surrounding the Pallet Dump has been heavily disturbed. No artifacts or other significant cultural features were identified in the area.

6.4 AREA D: ABANDONED TRUCKS

Two abandoned trucks and several assorted pieces of equipment and other dismantled vehicles are located approximately 150 metres southeast of the CAM-D garage. The vehicles include a Dodge M-37 ¾ ton 4X4 and a Kaiser/AM

General M35 6X6 (Plate 4). These vehicles are slowly sinking into the ground. A review of photographs taken at CAM-D during its operational period in the early 1960s show at least four of these vehicles in use (www.ve3uu.com). Visual inspection of the areas surrounding these vehicles revealed that no archaeological resources were present. The remains of numerous other vehicles and heavy equipment have been placed at various locations across the site including a crane, a grader, a dumptruck/snowplough and a large Bombardier (model unknown) snow machine, all located at the junction of the main road to CAM-D and the airstrip. While vehicles such as the Bombardier snowmobiles may be historically significant, salvage those located at CAM-D is considered highly impractical.

6.5 AREA E: CAM-D GARAGE

The garage at CAM-D represents the only large standing structure at the site. It is located at the west end of the access road into the main camp area on a high gravel platform, elevated approximately three metres above the surrounding area. It is considered to be serviceable condition, but the historical significance of the garage is assessed as low because its connection to the DEW line operations is somewhat peripheral and the construction techniques exhibited in the garage are still largely in use today. Therefore, removal and scrapping of the structure is considered acceptable in the regional context.

The area surrounding the garage was visually inspected by the archaeologists, at which time, it was determined that no significant cultural material were present and that prior disturbance for construction of the foundation platform had effectively removed all chance of encountering Pre-Contact cultural materials in the area.

Plate 3 Main Barrel Dump at CAM-D

Plate 4 View east toward CAM-D DEW Line station

6.6 AREA F: FALLEN ANTENNA

Area F contains the remains of the 300 ft tall antenna (Plate 5). The antenna was once secured with guy-wires attached to square concrete anchors. The excellent condition of the antenna and the fact that the guy-wires appear to have been intentionally disconnected suggests that the antenna was lowered to its current position rather than having fallen over..The area around the base of the antenna was closely visually inspected and one shovel test was excavated beside a piece of crystal quartz that appeared to have been reworked to produce a blade-like flake. Upon closer inspection, however, it became apparent that the blade-like flake had resulted from tracked heavy equipment operating in the area. No archaeological materials were identified in the vicinity of Area F.

While symbolic of the DEW line station's historic significance, the antenna at CAM-D is not considered suitable for preservation for educational purposes due to it's remote location and the likelihood that better examples exist at other locations.

6.7 AREA G: REPORTED INUIT HOUSE LOCATION

A reported Inuit house is located on the north side of the access road running from the airstrip to the CAM-D facility at the northernmost point of the road, on the apex of gentle curve (Plate 6). The site was likely the home of two Inuit families that were loosely associated with the base during its operational phase. Communication with former CAM-D personnel indicated that two Inuit families lived in adjoining houses located just off the main road on the way from the airstrip to the site, in separate accommodations from CAM-D personnel quarters (B Jeffery pers. com. to D. Green of Golder). The homes appear to have been located beside a small pond. Inuit men were employed as general labourers at many of the DEW Line sites and several were quite skilled mechanics (*Ibid*). CAM-D personnel were dissuaded from visiting with the Inuit families' homes, although daily life on the site involved frequent interaction. These Inuit families included men, women and several children including infants.

Plate 5 Base of the 300 foot Antenna at CAM-D

Plate 6 Northeast toward remains of contemporary 'Inuit House' at CAM-D

The former house location was traversed and visually examined, revealing that the location had been completely destroyed and appears to have been intentionally buried using heavy equipment (Plate 7). Remains of the homes included numerous pieces of burned plywood, wooden steps, portions of an oil-burning furnace, scrap metal and the remains of a heavily built wooden table. The presence of burned plywood, in conjunction with intentional burial suggests that the homes burned down, although it is not known, when such an event would have occurred. The house remains are largely contained within an area of approximately 20 m by 20 m. The results of the impact assessment indicate that the remains of the Inuit house(s) is/are of very limited scientific value and that documentation as to their presence has effectively mitigated this resource. As the remaining material consists of manufactured items which do not reflect traditional Inuit activities or customs, this location has not been recorded as an archaeological or Inuit cultural site. It is, therefore, recommended that the PWGSC/INAC be granted permission to remove the remaining debris associated with the reported Inuit house location during the remediation activities.

6.8 AREA H: MAIN FACILITIES AREA

Area H features a large concrete and steel platform, which appears to correspond to the former location of warehouse structure that was located across from the main operations building at CAM-D. Plate 8, taken in September of 2007 shows the platform in its current state, while Plate 9 (courtesy of B. Jeffrey) shows the warehouse structure while the site was in operation. This area was examined using pedestrian traverse and visual inspection at which point it was determined that the general area, including the original ground surface, had been completely disturbed. As such, no significant archaeological resources were observed in the area.

6.9 AREA I: FUEL TANKS

A large metal fuel tank and pump shack and several dozen empty 50 gallon drums are located in Area I. The fuel tank and pump shack are situated on a raised gravel pad, and the empty are neatly stacked in rows. The location appears to experienced considerable levels of disturbance in the past and no archaeological materials were observed in the vicinity. While these represent two of the only remaining facilities on site that are still recognizable, their significance is considered very low.

6.10 AREA J: BURIED STEEL CABINET

This location contains an above ground, earth-covered steel storage facility (Plate 10). The exact purpose of the facility is not known, but the unit is very heavily built with thick (1/4 inch or 6 mm) metal doors and sides. Six 50 gallon steel drums flank the doorway and may have served as a windbreak on either side of the door. The inside of the unit features two deep shelves approximately 40 cm apart (roughly 16 inches), which extend the entire depth of the metal unit (roughly four feet or ~120 cm) and a chimney style exhaust vent. Further, the gravel that has been pushed up the sides and over the roof of the steel unit, greatly exaggerates the size of the structure. Personnel stationed at CAM-D in 1961 indicated that they did not recall this structure being present at that time (B Jeffrey to D. Green of Golder). It is possible that this facility was installed in the late 1970s when CAM-D was refitted for use as a research station. Nonetheless, the area surrounding this structure has been was examined and was determined to be devoid of archaeological materials.

6.11 AREA K: BORROW SOURCES

Areas K a, b, c, and d (Figure 2) refer to a series of potential borrow sources that are located on the south side of a tributary creek which feeds into the river that flows from the southwest end of Simpson Lake (Plates 11 and 12) into Qamanaarjuk Lake . The three most westerly borrow are referred to as sand and gravel sources, while the most easterly is referred to as a clay source. These borrow sources are largely free of vegetation due to natural erosion resulting in excellent surface visibility. The distance of the borrow sources from the core remediation area required an additional day of assessment and the use of an ATV. These locations were thought to have high potential for containing Precontact archaeological resources due to their elevated location next to a river and its tributary.

Therefore, each of the borrow sources was thoroughly examined using pedestrian traverse in conjunction with parallel transects. Nonetheless, no cultural materials were observed at any of the borrow source locations.

6.12 AREA L: NORTH WARNING STATION

The North Warning Station location was not included in the AIA, but is noted here to help establish its location relative to the rest of the remediation area (Figure 2).

Plate 7 **View southeast toward burned and partially buried 'Inuit House'**

Plate 8 **Steel and concrete platform that once held the warehouse structure at CAM-D**

Plate 9 **Main control area at CAM-D in 1961 (courtesy B. Jeffrey)**

Plate 10 **View southwest toward buried steel cabinet at CAM-D**

Plate 11 **View west across west gravel and sand borrow source (see Figure 2 :K a)**

Plate 12 **View west across southeast clay borrow source (see Figure 2: K d)**

6.13 AREA M: EQUIPMENT DUMP

Area M is located at the west end of the smaller of two unnamed lakes, due south of the airstrip at CAM-D. The location appears to have been used as an equipment dump for construction materials such as electrical conduit, scrap metal, wooden crates of metal brackets, and hand-operated machinery, including 12 pneumatic jack hammers, several dozen jack hammer bits and miscellaneous compressor parts (Plate 13). Many of the heavier materials are in the process of sinking into the permafrost. The area of the dump site is considered to have high potential for containing archaeological resources and is a similar environment to a tent ring (NdJl-5) site located on the edge of an adjacent waterbody. Consequently, the area was thoroughly examined to check for surface features or other archaeological materials, but none were identified.

6.14 AREA N: AIRSTRIP

The airstrip will be left 'as is' in order to service the North Warning System site which is still in operation adjacent to CAM-D. However, areas immediately adjacent to the airstrip were visually inspected for the presence of archaeological materials as they contain debris that will be collected and removed as part of the remediation program. Of particular note, the junction of the main access road to CAM-D and the airstrip is associated with the remains of several structures and four vehicles including a Bombardier snowmobile, a crane, a grader and a dump truck (Plate 14). These remains are considered scrap and no archaeological materials were identified in close proximity to the Airstrip.

6.15 FRESHWATER LAKE AREA

The northwest shoreline of the freshwater lake located south the airstrip was visually inspected for archaeological materials. The northern portion of the shoreline contains a large tracked trailer unit to be pulled behind a bulldozer. Plate 15 shows the trailer in its current condition on the shore of the lake. Photographs of CAM-D in its operation phase show this or similar trailer units being used to transport fuel drums from the airstrip. A large steel cabinet and several scraps of wood are located at the shoreline, immediately adjacent to the tracked trailer. A partially submerged plywood boat is located along the western shoreline of the lake (Plate 16). The boat appears to have been built on site from materials at hand. The plywood sides of the boat have been scored using power tools so that the flat sheets could be curved into the appropriate shape. A handmade paddle within the boat is constructed of plywood and an aluminum shaft. The condition of the boat and the nylon rope used to moor it, suggest that the boat is likely from the later use of CAM-D in the late 1970s or possibly later.

A stone tent ring was observed south of the wooden boat along the west edge of the lake. The ring appears to be of recent origin, based on it's proximity to modern camping tools, such as a small aluminum camp stove, but it has been recorded as archaeological site NdJl-5 because as it may relate to traditional Inuit activities such as Caribou hunting or fishing. The site is discussed further in Section 6.16 below.

Plate 13 Close up of jack hammer and other debris near small lake

Plate 14 Abandoned vehicles adjacent to airstrip at CAM-D

Plate 15 Tracked trailer on north side of small freshwater lake

Plate 16 Makeshift boat at CAM-D

6.16 NdJl-5 TENT RING

A tent ring was identified at the west side of the lake, approximately 15 metres west of the water's edge and 15 metres south of a small drainage that feeds into the lake (Plate 17 and Figure 3). The ring consists of a total of 19 rocks arranged in a roughly circular formation with one rock situated in the approximate centre of the ring. The overall dimensions of the feature are roughly 3.6 metres across, north to south and slightly less east to west. The feature appears to be associated with modern camping equipment such as a kerosene camp stove and items that were once associated with the DEW line station at CAM-D. These items included a solid brass doorknob, a piece of lumber and a broken rasp file. It is conceivable that an item such as a file would be a desirable tool to have in an Inuit hunter's tool kit (Plate 18), while the doorknob may have been collected from debris at the DEW line station for modification into some other form of tool or perhaps, use as a fishing weight. However, such speculation is purely conjecture at this time.

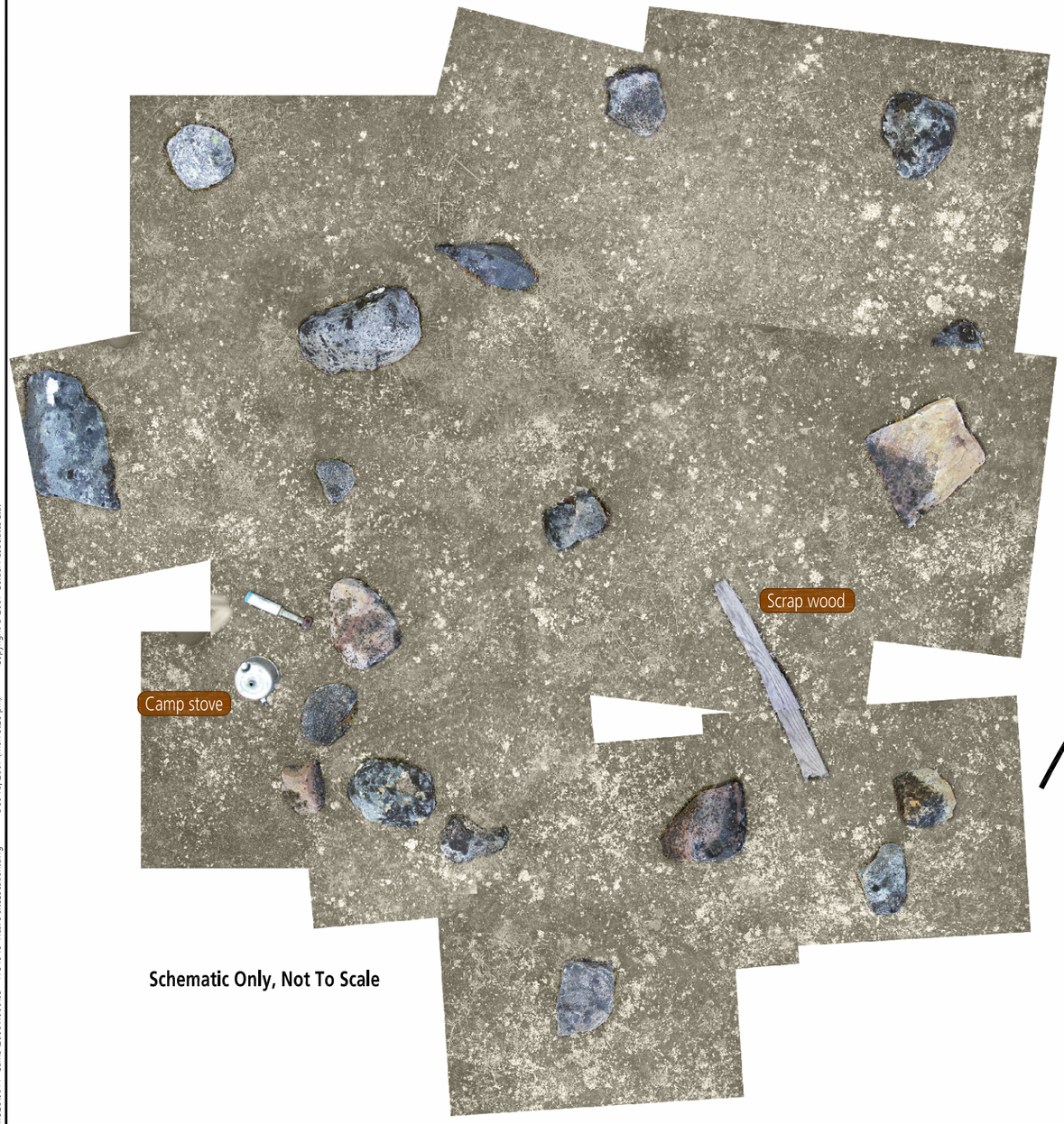
It is also possible that the tent ring and the modern materials are not temporally related and that the tent predates these recent materials. An early historic type of traditional tent referred to as a 'Netsilik short-pole conical tent' has been

described by Lee and Reinhardt (2003) that roughly corresponds to the tent ring at CAM-D. Netsilik short-pole conical tents consist of dome-shaped hide covering which is held down on the outside by a ring of stones. The center of covering is held up by a single pole which does not extend through the centre of the covering as in other conical tents. The doorway is created stringing a thong from the top of the central pole to shorter pole stationed outside the ring. Lee and Reinhardt note that Netsilik tents may use an additional "T" bar across the top of the centre pole to increase the surface area of the dome that is upheld by the centre pole.

While the tent ring could not conclusively be linked to traditional Inuit activity or ancestral materials, the location is still worthy of avoidance as this specific location requires no remediation. As such the location was flagged, mapped and coordinates for the tent ring were collected using a GPS. It is recommended that this area be restricted to foot traffic and that any empty fuel drums or other debris in the area be collected by hand. This location will be re-flagged prior to the commencement of remediation activities.

Plate 17 Tent Ring (NdJl-5) located on west side of unnamed lake

Plate 18 Broken file observed in apparent association with tent ring



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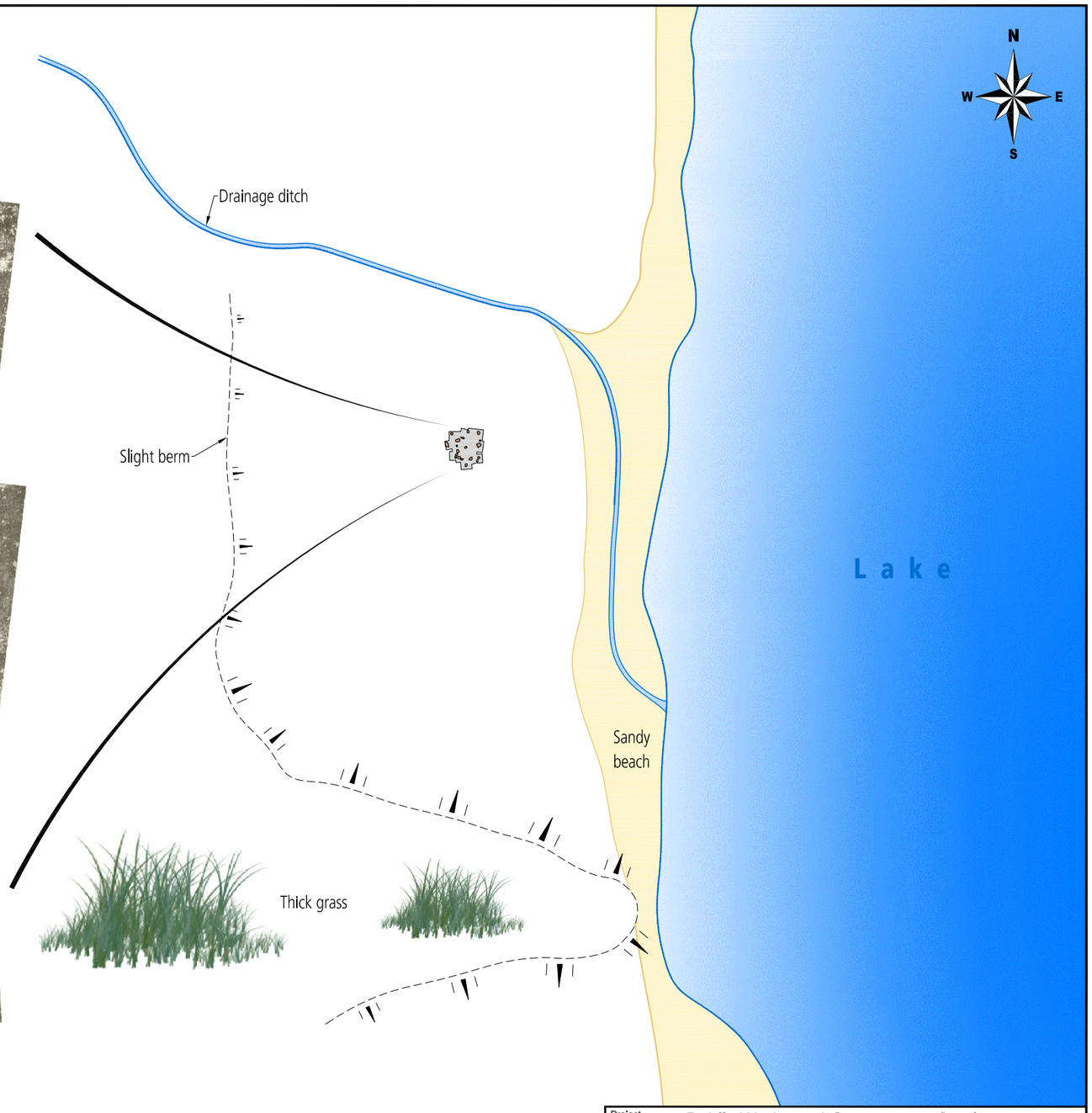

Overview plan

Note: Based on field notes.

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Scale Approx. Metres

Project
Public Works and Government Services
Archaeological Impact Assessment
CAM-D DEW Line Station, Nunavut

Title
NdJI-5
Site Location

Golder Associates
Edmonton, Alberta

Project No.	07-1328-0011		File No.	1731948	
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Cadd	RW	14/11/07			
Check	DG	10/12/07			
Review	DB	10/12/07			

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6.17 SIMPSON LAKE SHORE

One area which is scheduled for remediation on the southeast shore of Simpson Lake was not assessed under the current permit because the distance from the main remediation areas and the limited amount of debris along the lake edge made pedestrian assessment impractical (Figure 2 and Plate 19). In lieu of the surface reconnaissance, a low-level aerial survey of the area was conducted, which included four passes of the area, at the end of the second day at CAM-D. The aerial survey indicated that the shoreline contained an enclosed trailer and a several pieces of lumber. It should be noted that throughout the operational period at CAM-D, the route to this location was used occasionally by heavy vehicles and, therefore, likely experienced some level of surface disturbance. No evidence of cultural material was noted during the aerial survey. This area will be assessed more fully in 2008 when site NdJl 5 is flagged for avoidance.

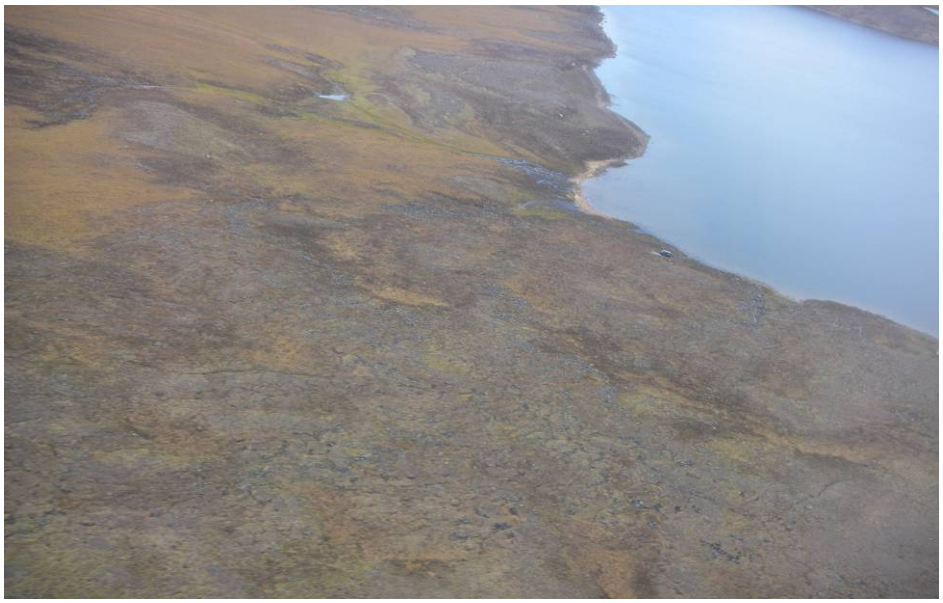

Plate 19 Trailer and lumber located on the shore of Simpson Lake

7 SUMMARY AND RECOMMENDATIONS

The AIA of the CAM-D Intermediate DEW line station was conducted in September of 2007 under Nunavut permit 2007-034A. The study area was limited to CAM-D site locations requiring remediation based on information supplied by PWGSC /INAC. Upon arrival at CAM-D it was observed that much of the site had been destroyed and or partially removed. The remaining areas consisted largely of debris such as 50 gallon fuel barrels, discarded vehicles and equipment and foundations of buildings and other structures such as the remaining DEW station garage/workshop. Because of this, the assessment of individual structures became redundant as they already have already been removed. As such, the entire facility area including the remaining garage, warehouse platform, airstrip, roads, barrel dump locations, borrow sources and abandoned vehicle locations formed the study area used in the project. One tent ring site. NdJl-5, was identified at the edge of small lake located south of airstrip. The site has been, mapped and GPS coordinates were collected. It will be reflagged in 2008 prior to commencement of the remediation procedures. It is recommended that access to the site area be restricted to foot traffic and that the tent ring should be avoided during the remediation activities. One area adjacent to east side of Simpson Lake was not traversed during the assessment, as the distance from the main facilities area and the limited nature of the debris at the location, meant that pedestrian assessment was not cost effective at the current stage. This area will be addressed in 2008 when the identified heritage resource site (NdJl-5) will be flagged for avoidance.

Pre-field research indicated that the area around Simpson Lake was part of an important winter trail system between Pelly Bay and Spence Bay and previously recorded archaeological sites (NdJm 1 and 2) located in close proximity to Simpson Lake strongly suggest its importance as a caribou interception point and fishing location. However, information provided by one former personnel stationed at CAM-D in the early 1960s noted that, apart from the Inuit families who lived and worked at CAM-D, Inuit hunters did not approach the area of the base during his stay (B. Jeffrey to D. Green of Golder). In addition, military staff of the DEW line site were discouraged from interacting with the Inuit families who lived in separate accommodations from the others.

While the historic importance of the DEW line stations cannot be overstated the overall condition of the remains at CAM-D are not considered suitable for protection or preservation.

8 CLOSURE

We trust the above meets your present requirements. If you have any questions or require additional details, please contact the undersigned.

GOLDER ASSOCIATES LTD.

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Report reviewed by:

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9.2 WEBPAGES

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http://www.ainc-inac.gc.ca/nu/nuv/zxcf_e.html

Dew Line: An Arctic Adventure: DEWLine Photos by Brian Simon (now Brian Jeffrey) Taken in FOX Sector, 1960-62 (118 images)
http://www.ve3uu.com/Dewline_Photos.html

9.3 PERSONAL COMMUNICATIONS

September 4th, 2007. Matthew McElwaine (PWGSC) pers. com. to D. Green of Golder.

September 28th, 2007. Brian Jeffery (formerly stationed at CAM-D) pers. com. to D. Green of Golder.

Dec 4th, 2007. Sonia Nobrega (Contaminated Sites Project Manager INAC pers. com. to D.Green of Golder.

APPENDIX I

HERITAGE RESOURCE SITE FORMS

CAM-D, Simpson Lake, Newly Recorded Site 2007:

BN=NdJl 5
NAM=N/A
OWN=
RN=CAM D Tent Ring
PN=07-034A
PRO=Archaeological Impact Assessment of the CAM D Reclamation Area at Simpson Lake, Nunavut.
LOC=The site is location on the west edge of a small lake located south of the main CAM-D complex. A seasonal drainage channel feeds into the lake less than 15 metres north of the tent ring.
GEO=N/A
TER=Nunavut
DST=Keewatin
MR= 57 A
JUR=Federal
LAT=68° 34' 47.9 "
LNG=91° 57' 09.0"
DET=Hand held GPS in NAD 83*
UTM= 15W 0542691E/7607893N
DET=Hand Held GPS NAD 83
AIR= unknown
EL(ASL)= unknown
DET (ASL)=
EL(LOC)=
DET(LOC)=
REF= west edge of small lake
SIZ= feature is 3.6 metres N-S by 3.1 metres E-W
CON=good condition, no previous impacts observed
TYC=contemporary
TY=caribou hunting campsite?
FE=tent ring
CU=Netsilik Inuit
CRE=
PER=20th Century
DAT=N/A
RES=D'Arcy Green
OD=September 6th/2007
COL=Not collected
PRE=
UPRE=

RE=The site consists of a single tent ring located on the west side of a small lake, south of the main CAM-D DEW Line site. The tent ring is comprised of 19 rings rocks and measures 3.63 metres N-S and 2.06 metres E-W. The ring appears to be associated with a relatively modern and compact campstove/heater (single burner type), a small piece of scrap lumber and a brass doorknob from the DEW line station. The location was recorded while examining the DEW Line station prior to a proposed clean-up and rehabilitation of the area by PWGSC. The area was flagged for avoidance and recommendations restricting the use of heavy equipment in the vicinity will be proposed.

SUPPL= The UTMs seem to be accurate, but the tent ring may plot too far from the edge of the lake. The ring should be within 20 metres of the water's edge and approximately 15 metres south of a seasonal drainage channel.

APPENDIX II

PHOTOGRAPH LOG

CAM-D Photograph Log

No.	Direction	Site	Comment
1	S	Aerial CAM-D	labeled
2	E	Aerial CAM-D	labeled
3	N	Main Barrel Dump	North of CAM-D operations Area
4	E	Abandoned Trucks	South of remaining garage structure
5	S	300 foot antenna	
6	NW	Inuit House	Appears burned and bulldozed
7	SE	Inuit House	Close up of burned, buried plywood
8	SE	platform and garage	Former warehouse platform
9	NE	Main control area	Circa 1961 slide appears to be reverse (B.Jeffrey)
10	W	Middle borrow source	Note lack of vegetation
11	W	West borrow source	Note lack of vegetation
12	W	Southeast Borrow	Note ridge feature
13	N	Equipment Dump	Located at small freshwater lake
14	E	Abandoned Vehicles	Located at junction of main road and airstrip
15	N	Tracked Trailer	Located North side of freshwater lake
16	E	Makeshift boat	Plywood boat (appears recent)
17	S	NdJl-5	Tent ring at NdJl-5
18	N/A	Close up of file NdJl-5	File located on west side of ring
19	N	Simpson Lake	Trailer located on shore of Simpson Lake