REPORT

Solstice Gold - Kahuna Gold Project 2019 Archaeological Reconnaissance

Permit 2019-28A

Submitted to:

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June 2020

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EXECUTIVE SUMMARY

In 2019 Golder Associates Ltd. conducted an archaeological inventory and reconnaissance of proposed exploration and temporary camp areas on behalf of Solstice Gold for their Kahuna Gold Project. The Project is located approximately 54 kilometres northeast of Rankin Inlet in the Kivalliq Region of Nunavut. This assessment was completed under Class 2 Nunavut Archaeologist Permit No. 2019-028A issued by the Government of Nunavut, Department of Culture and Heritage.

Areas were examined using a combination of low-level helicopter survey and pedestrian transects. During the course of the field survey one new archaeological site (KgJj-6) was documented. It consisted of three tent rings and a potential hunting blind located on a hill known locally as Quaituk Hill. No archaeological sites were identified in areas where potential drill locations or field camps are presently being considered. The geographic coordinates of all archaeological features were provided to Solstice Gold so they could be incorporated into future project planning and avoided.

This Final Report fulfils the permitting requirements necessary for the completion of archaeological work carried out under Nunavut Archaeologist Permit 2019-028A. The report contains sensitive information regarding archaeological sites that are protected under Nunavut Archaeological and Palaeontological Sites Regulations. All parties are bound by the Nunavut Archaeological Sites Data Base Licence Agreement. As per sections 5 and 6 of the Licence Agreement it is agreed that the archaeological site data provided is to be used for the project specified and will not be made public unless site positions are randomized and the map scale is 1:2,000,000 or less. This report is not to be made public on regulatory or other public websites.

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1.0 INTRODUCTION

In July of 2019 Golder Associates Ltd. (Golder) conducted an archaeological reconnaissance and inventory program on behalf of Solstice Gold (Solstice) as part of their Kahuna Gold Project (the Project). The Project is located between the communities of Rankin Inlet and Chesterfield Inlet in the Kivalliq Region of Nunavut. Proposed exploration fieldwork will include rock, till and soil sampling, prospecting, geological mapping, test pit sampling, ground geophysical surveys, diamond drilling, and reverse circular drilling.

The objective of the archaeological investigation was to examine potential temporary field camp options for future exploration activities, as well as a reconnaissance of general areas identified for exploratory drilling in 2019.

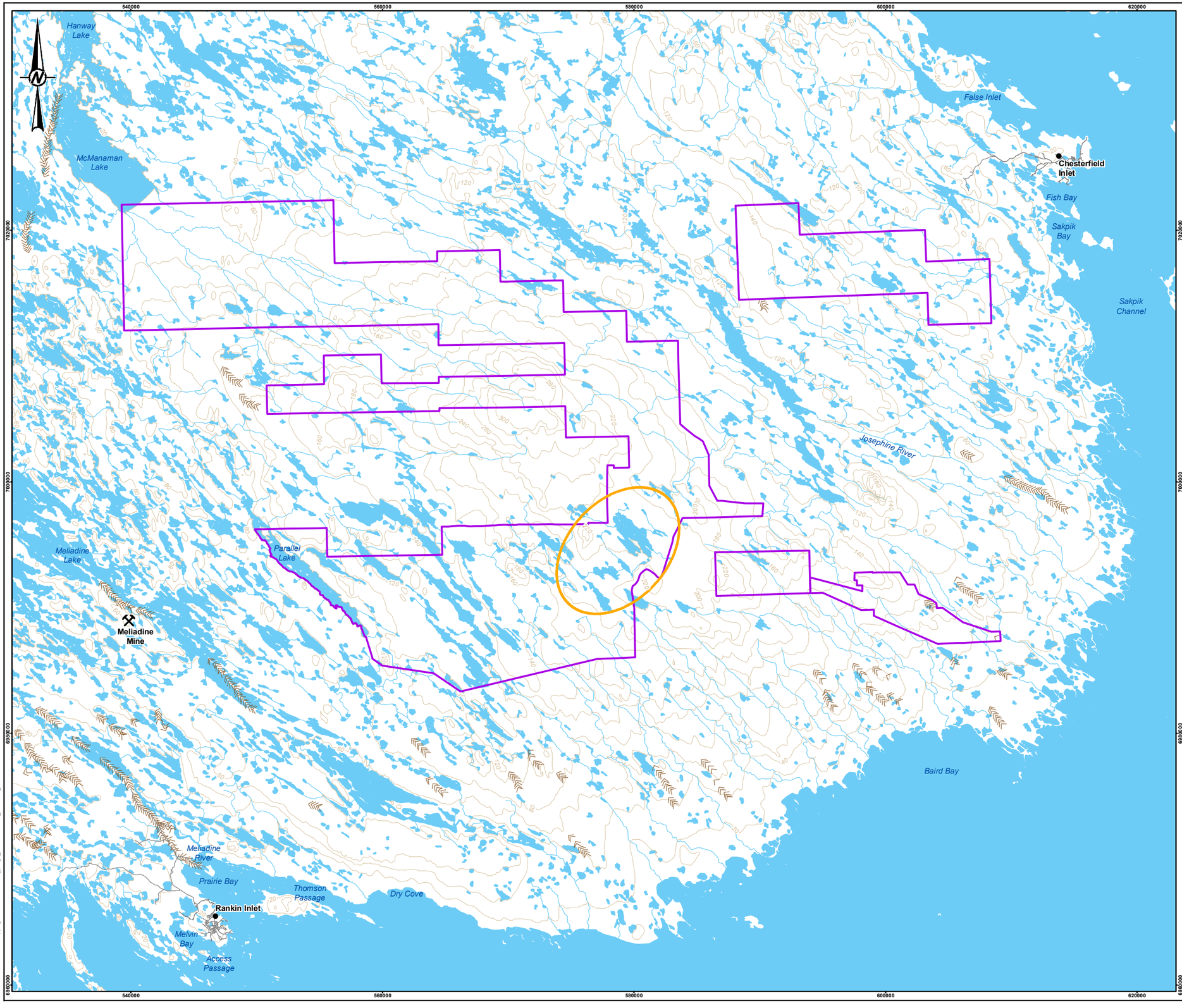
Field work was completed between July 13 and 14, 2019 under Class 2 Nunavut Territory Archaeologist Permit No. 2019-28A led by Patrick Young of Golder, with assistance from Ian Russell lead geologist with Solstice, and Edwin Aggark of Chesterfield Inlet. The archaeological investigation consisted of a combination of low-level helicopter reconnaissance, followed by a pedestrian survey of select high potential landforms within the project area.

This report summarizes the results of the archaeological reconnaissance and inventory. Section 2 provides a description of the project location and environment. Section 3 defines archaeological resources and potential impacts. Section 4 identifies the project objectives. Section 5 summarizes previous archaeological research, while Section 6 provides an overview of the regional culture history. Section 7 outlines the assessment methods, and results are discussed in Section 8. Summary and recommendations can be found in Section 9.

2.0 PROJECT LOCATION AND ENVIRONMENT

The Project is located between the communities of Rankin Inlet and Chesterfield Inlet near the west coast of Hudson Bay, approximately 15 km east of Agnico Eagle's Meliadine Mine (Figure 1). The property consists of an 866 km^2 land package that stretches approximately 40 km north-south and 70 km east-west (Figure 1). The proposed study area examined in 2019 within this property consists of an approximately 7,200 ha area centered on a lake located 45 km northeast of Rankin Inlet referred to by the Project team as Enterprise Lake. This shallow lake is part of a drainage basin linked through a series of seasonal and ephemeral drainages that flow southwest to larger unnamed lakes that eventually flow southeast into Hudson Bay. The landscape within the study area is comprised of many smaller lakes and generally low-lying, poorly drained, tundra terrain with occasional boulder fields and rock outcrops. The most prominent landform is a hill located near the western boundary of the study area. It is referred to locally as Quaituk Hill and rises to approximately 240 m above sea level. Terrain towards the eastern boundary of the study area also rises to an upland of similar elevation.

The Property is more broadly situated within the Maguse River Upland Ecoregion of the Southern Arctic Ecozone (Ecological Framework of Canada 2012). This ecoregion encompasses a portion of the Hudson Bay coastline from Chesterfield Inlet, south to the Manitoba border, and northwest to Baker Lake. The environment is characterized by a cover of shrub tundra vegetation that includes dwarf birch, willow, and alder on warm, dry areas; while poorly drained areas are dominated by willow, sphagnum moss, and sedge. Topography is characterized by hummocky bedrock outcrops, prominent eskers, and wetlands that make up approximately 25% to 50% of the area (Ecological Framework of Canada 2012). A variety of terrestrial wildlife are found in the region including barren-ground caribou, arctic fox, arctic wolf, arctic hare, weasel, and polar bear. Bird species include willow ptarmigan, snowy owl, and rough-legged hawk. Sea ducks, snow geese, swans, Canada geese, and shorebirds are common in coastal areas, while marine mammals such as white whale and seals are also found in coastal waters (Ecological Framework of Canada 2012).



LEGEND

- MINE LOCATION
- POPULATED PLACE
- ELEVATION CONTOUR (20 m INTERVAL)
- ESKER
- ROAD
- WATERCOURSE
- WATERBODY
- 2019 STUDY AREA
- PROJECT CLAIM BOUNDARY

0 7,500 15,000

1:300,000 METRES

REFERENCE(S)

1. BASE DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 19 DATUM: NAD 83

CLIENT
SOLSTICE GOLD

PROJECT
KAHUNA GOLD PROJECT
ARCHAEOLOGICAL IMPACT ASSESSMENT

TITLE
LOCATION OF SOLSTICE GOLD KAHUNA PROJECT

CONSULTANT
GOLDER

YYYY-MM-DD	2020-03-30
DESIGNED	KM
PREPARED	LMS
REVIEWED	
APPROVED	

PROJECT NO.	PHASE	REV.	FIGURE
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3.0 ARCHAEOLOGICAL RESOURCES

3.1 Definitions

Archaeological resources are important to understanding the history of Nunavut and are valued by community members. Archaeological sites in Nunavut are protected by the *Nunavut Land Claim Agreement* Section 33 and the *Nunavut Archaeological and Paleontological Site Regulations*, which were developed pursuant to the *Nunavut Act* (Government of Nunavut 2003).

The *Nunavut Archaeological and Paleontological Site Regulations* define an archaeological artifact as “any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated…” An archaeological site is defined as “a site where an archaeological artifact is found”.

Archaeology itself is the study of past cultures through investigation of their material remains. This includes features, artifacts, and ecofacts. Features consist of the remains of any non-portable human activity that cannot be removed from a site without disturbing it. Examples include stone hearths, blinds, caches, inuksuit, and dwelling remains such as qarmaqs, tent rings, or cabins. Artifacts are portable objects that show evidence of human modification or manufacture. This includes items such as stone tools, stone flaking debris, cut or modified bone, or objects of European or Euro-Canadian manufacture. Ecofacts are naturally occurring items such as preserved plant remains or pollen that can aid in the interpretation of archaeological site environments or past resource use. These material remains collectively occur at archaeological sites, and through study of their inter-relationship archaeologists can reconstruct past lifeways and activities that characterize the nature and chronology of past human occupation.

Pre-contact archaeological sites are those that reflect activities by Inuit people prior to European influence or arrival. They are characterized by artifacts and features that include modified bone and stone, as well as stone structures. Historic sites are those that post-date European arrival or influence and can date from early contact through to more recent activity greater than 50 years old. These sites can include artifacts of Euro-Canadian manufacture and features such as cabin remains, campsites, can middens, or graves. Although excluded from regulatory definitions, Land Use Sites are often documented during archaeological field programs as ancillary information. They are identified through engaging with members of Indigenous communities and may include more recent camping, hunting/trapping areas, or ceremonial/sacred areas that were used within the last 50 years.

The value of archaeological sites cannot be measured in terms of individual artifacts. Rather, the value of these resources lies in the integrated information which is derived from the spatial relationship (context) of the artifacts, associated features and their environment. The ability to interpret the significance of a particular site is based on an understanding of the relationship between the material culture, the sediments and strata in which they occur, and their position within the broader natural landscape.

3.2 Potential Impacts

Archaeological sites are non-renewable resources that can occur on or near ground surface or be deeply buried depending on the depositional environment. Alteration of the landscape can result in the damage or complete destruction of all or portions of archaeological 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.

Disturbance from early stage mineral exploration programs is limited compared to later stage development projects. However, given that archaeological sites in arctic environments often occur on or near surface, activities related to structure set up or equipment laydown areas have the potential to impact archaeological resources.

Temporary field camps are typically built on elevated, well drained landforms. They require tents or structures for a variety of functions including a kitchen, office, dry tent, core logging, utility tent, toilet facility (e.g., Pactos), crew tents, generator shack, portable fuel-fired incinerator, and arctic grade containment berms. Structures typically consist of a combination of WeatherPort vinyl tents, canvas prospectors' tents and small plywood structures. Camps are fully closed and dismantled upon completion of exploration activities, and the site reclaimed and restored to its original state.

Drill rigs are low impact with a drill hole diameter no larger than 6 inches (15.24 cm). A typical diamond drill site occupies less than 0.07 ha surface area, with drilling rig housed in a plywood shack on skids or a timbered floor. Drill rods, supplies and a survival shelter are staged adjacent to the drilling rig. Water to support the rig is sourced from the nearest suitable water body using an electric water pump. A coil heater and a generator provide power to the pump. During winter months under snow and frozen ground conditions drilling equipment is moved to drill sites overland using Challengers and cargo sleds. During summer, the rig is dismantled into components and transported by helicopter. Reverse Circulation (RC) drilling using a single RC drill rig of similar size and mobility may be used. These rigs operate on air pressure only and do not require a water source to operate.

4.0 PROJECT OBJECTIVES

The current archaeological survey was requested by Solstice in support of exploration activities in the Kahuna Gold Project area. Section 10a of the *Territorial Lands Act* stipulates that "No permittee shall, unless expressly authorized in his permit or expressly authorized in writing by an inspector, (a) conduct a land use operation within 30 m of a known monument or a known or suspected historic or archaeological site or burial site…" Section 5 (1) of the *Nunavut Archaeological and Paleontological Site Regulations* further stipulate that "No person shall excavate, alter or otherwise disturb an archaeological site, or remove an archaeological artifact from an archaeological site, without a Class 2 Permit."

The objectives of the archaeological survey flow from the principals of Territorial and Federal legislation concerning the protection of archaeological resources and are outlined as follows:

- conduct a field reconnaissance and inventory of proposed study area within the Kahuna Property;
- examine landforms where potential future field camps and drill holes are being considered;
- identify and document any archaeological sites or traditional use sites encountered;
- provide geographic coordinates of identified archaeological sites and features to Solstice to assist with project planning and facilitate avoidance of archaeological sites during exploration activities; and
- prepare a final report for submission to Solstice, Government of Nunavut - Department of Culture and Heritage (GN-CH) and other community groups as required under the archaeological permit conditions.

5.0 PREVIOUS STUDIES

The majority of previous studies in the Project region have focused on areas surrounding Chesterfield Inlet and Rankin Inlet/Meliadine mine. It has only been within the last four years that the intervening land in between these two communities has been subject to archaeological investigation. This includes two archaeological assessments conducted within the Kahuna Property on behalf of Dunnedin Ventures Inc. (now Kodiak Copper Corp.) for their Kahuna Diamond Project.

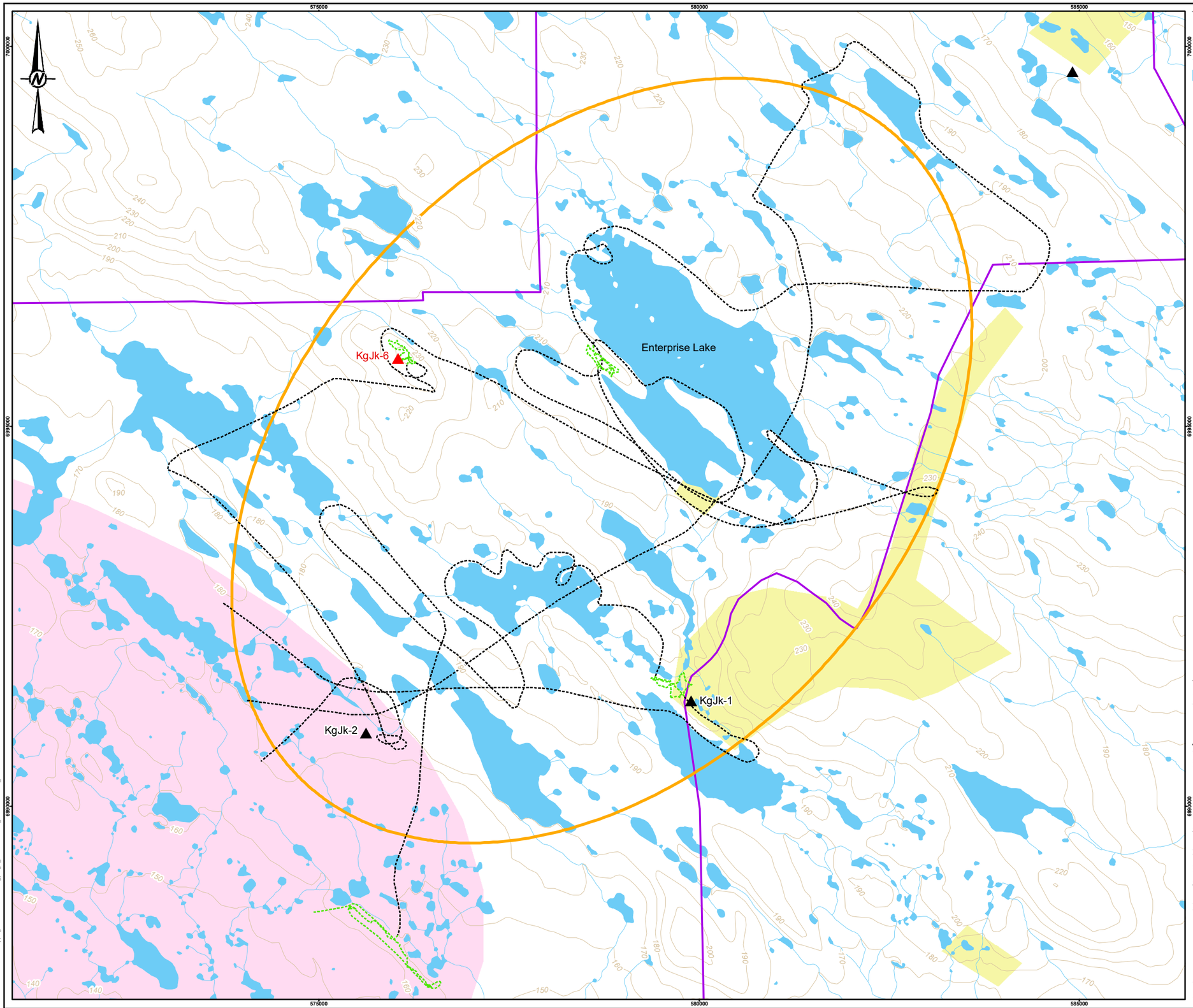
The first archaeological inventory and reconnaissance for the Kahuna Diamond Project was carried out by Golder in 2016 (Golder 2017). This included examination of 10 target areas proposed for drilling and bulk

sampling located immediately south of Josephine Lake/River and extending approximately 20 km to the southwest. Two fuel cache areas and a winter road extending 45 km northeast from Rankin Inlet were also examined. During the course of the field survey, 10 archaeological sites were recorded. Two (KgJk-1 and KgJj-2) were documented within proposed exploration areas, seven (KgJj-1, KgJj-3, KgJj-4, KhJj-1 to 4) were documented within the Dunnedin claim, but outside proposed exploration boundaries, and one (KfJl-16) was recorded adjacent to the proposed winter access trail from Rankin Inlet. Documented sites consisted of campsites that included dwellings such as tent rings and qarmaqs, as well as isolated caches, inuksuit, and hunting blinds. No culturally diagnostic artifacts were observed or collected. Four of the sites were located along the shore of Josephine Lake. The geographic coordinates of all known archaeological features were provided to Dunnedin to incorporate into project planning so they could be avoided by the minimum buffer during exploration activities.

A second archaeological inventory and reconnaissance for the Kahuna Diamond Project was carried out by Golder in 2018 (Golder 2018). This included investigation of the temporary field camp located approximately 40 km northeast of Rankin Inlet, as well as areas identified for exploratory drilling. The archaeological investigation consisted of a combination of low-level helicopter reconnaissance, followed by a pedestrian survey of select high potential landforms within the general project area. This included a prominent esker stretching southeast of Josephine Lake and paralleling Josephine River 22 km northeast of the field camp, as well as other esker landforms in an area stretching 16 km west of camp. Over the course of the three-day field program, 15 new archaeological sites were recorded. No sites were identified in conflict with the field camp, although an isolated tent ring (KgJk-2) was identified on the same esker feature over 250 m to the north. Nine sites were identified along the Josephine River esker (KgJj-5 to 13), and five sites were identified on smaller eskers and landforms to the southwest of camp (KgJl-3, KgJk-3 to 5, KfJl-25). A total of 36 stone features were identified at the sites including 24 tent rings/dwellings, 6 caches, 4 hunting blinds, 1 hearth and 1 inuksuk. No diagnostic artifacts were observed and no artifacts were collected. The sites likely relate to historic Caribou Inuit camping and hunting activities. Local assistants indicated that the Josephine River system is a popular fishing location for arctic char and is frequented by individuals from both Rankin Inlet and Chesterfield Inlet. The char run from the lake into the ocean in June and return to the lake in late August to spawn. The geographic coordinates of all known archaeological features were provided to Dunnedin to incorporate into their project planning so they could be avoided during exploration activities.

Areas examined during these two seasons partially overlap with the 2019 Solstice Gold assessment area (Figure 2). This includes the Dunnedin exploration camp area near the southwest boundary, and areas along the east boundary. As a result, two known sites, KgJk-1 (single cache) and KgJk-2 (single tent ring), occur within the current study area, but are not near specific exploration activities.

To the north in the Chesterfield Inlet region, some of the earliest archaeological studies ever conducted in the Canadian arctic occurred near the present-day Hamlet of Chesterfield Inlet. In 1922 members of the Fifth Thule Expedition led by Danish polar explorer and anthropologist Knud Rasmussen reported a group of “house ruins” at a place known locally as *Igluligardjuk* (Mathiassen 1927). In 1923 Peter Freuchen returned to the site as part of the expedition to document 18 pit house ruins and excavate two of them. The excavation produced a variety of stone and bone “refuse” as well as 35 formed tools of stone, bone and antler. This site would eventually be given the Borden designation KiJi-3 and helped define the Thule archaeological culture.



LEGEND

- ELEVATION CONTOUR (10 m INTERVAL)
- WATERCOURSE
- WATERBODY
- ARCHAEOLOGICAL SITE - NEWLY RECORDED
- ARCHAEOLOGICAL SITE - PREVIOUSLY RECORDED

SURVEY TRACKS

- HELICOPTER
- PEDESTRIAN
- 2016 DUNNEDIN EXPLORATION AREAS
- 2018 DUNNEDIN/SOLSTICE STUDY AREA
- 2019 SOLSTICE STUDY AREA
- PROJECT CLAIM BOUNDARY

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REFERENCE(S)

1. BASE DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA, ALL RIGHTS RESERVED.
PROJECTION: UTM ZONE 19 DATUM: NAD 83

CLIENT
SOLSTICE GOLD

PROJECT
KAHUNA GOLD PROJECT
ARCHAEOLOGICAL IMPACT ASSESSMENT

TITLE
OVERVIEW OF ASSESSED AREAS AND DOCUMENTED ARCHAEOLOGICAL SITES

CONSULTANT
GOLDER

YYYY-MM-DD	2020-03-31
DESIGNED	KM
PREPARED	LMS
REVIEWED	
APPROVED	

PROJECT NO.	PHASE	REV.	FIGURE
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The next significant archaeological research in the Chesterfield Inlet area occurred over 40 years later and was conducted as part of the Northwest Hudson Bay Thule Project (Phases 1 to 3) led by Charles Merbs from the University of Arizona (McCartney 1977; Merbs 1976). Between 1967 and 1969 studies were carried out at various sites between Chesterfield Inlet and Wager Bay. From south to north this included Igluligardjuk (KiJi-3), Silumiut (KkJg-1), Silumiut North (KkJg-2), Iglulik (LaJf-1), Inuksivik (KiJe-1), Inuksivik North (KiJe-2), Kulaituijavik (LdHw-1), and Kamarvik (LeHv-1). During this study McCartney revisited KiJi-3 to carry out formal feature mapping of the Thule village site at KiJi-3 and excavate one of the pit houses, while Merbs examined eight graves associated with the broader site (six Thule and two historic).

In 1970 George Wenzel led Phase 4 of the Northwest Hudson Bay Thule Project with surveys extending from Chesterfield Inlet north to Winchester Inlet (Wenzel 1971a). Although no work was carried out near the Hamlet during this field season, Wenzel did return in 1971 where he revisited KiJi-3 and documented four new sites east of the Hamlet (Wenzel 1971b, c). The new sites consisted of KiJi-4 (3 graves, 1 cache), KiJi-5 (1 tent ring), KiJi-6 (tent rings and caches), and KiJi-7 (tent rings caches and fox traps).

In 2011 archaeological surveys were conducted on behalf of the Hamlet of Chesterfield Inlet in 2011 as part of an economic development plan. Aarluk Consulting Inc. (2011) revisited or attempted to revisit seven previously recorded sites near the community and documented four new sites located south of the Hamlet.

Most recently Golder (2020) conducted a site mapping program on behalf of the Hamlet as part of community land use and economic development initiatives. This resulted in the recording of nine new sites and revisiting two previously recorded sites. Site types included 20th century grave sites, burial cairns, and Thule camp sites.

To the south of the Project in the Rankin Inlet region the earliest archaeological studies began in the 1970's as part of the four year Rankin Inlet Archaeological Project that ran between 1973 and 1976 (Linnamae and Clark 1974, 1975, 1976; Linnamae 1977). The objective was to document and analyze archaeological sites in the area and reconstruct the culture history of the region. During the 1973 season archaeological surveys were conducted along the coastal areas of Rankin Inlet and along Diana and Meliadine Rivers (Linnamae and Clark 1974). This resulted in the recording of 180 archaeological sites. The 1974 season focused on excavations at KfJm-3, a Thule camp site on the Meliadine River (Linnamae and Clark 1974). The 1975 season saw further excavation at KfJm-3 and nearby KfJm-32, as well as additional surveys at the "Narrows" of Meliadine Lake, the east end of Meliadine Lake, as well as areas northeast and southeast of Daylight Lake (Linnamae and Clark 1975). At least 38 sites were recorded in areas to the east of Daylight Lake and provide a glimpse into land use of interior areas away from the coast or major lakes and rivers. Sites consisted of tent rings, caches, "bivouac or overnight stop type of site[s]", and isolated fox traps (tunnel and beehive types). The site locations were heavily influenced by the landscape and were commonly associated with esker ridges that formed natural travel routes across the landscape and sometimes bridges to cross water bodies. Game trails indicated these landforms were utilized by caribou, and it was postulated that the majority of archaeological sites reflected small hunting groups that followed migrating caribou along these natural "highways". Other sites were thought to be associated with lakes that were abundant in arctic char and lake trout. The final 1976 season focused on excavations at five sites in the Narrows area (KgJm-7, 8, 9, 10 and 22) as well as artifact collection from a site on the coast near the Itivia Quarry (KeJm-10) (Linnamae 1977). The results of the four-year program were instrumental in refining the culture history on and near the west coast of Hudson Bay and formed the basis for Iqalugaarjuup Nunanga Territorial Park.

It would be over 20 years before the next archaeological surveys were carried out in the Rankin Inlet region, this time as part of archaeological impact assessments for WMC International Ltd.'s Meliadine West Gold Project. Hart (1998) carried out surveys in 1998 examining proposed project components in the Narrows area west of Meliadine Lake. A total of 12 heritage resource sites were revisited or recorded (KgJm-7, KgJm-36 to 46). During

this study a combination of oral history and archaeology was used to interpret recent Inuit land use of the Rankin Inlet area. The local participation of the Elders Steering Committee and the provision of a member on the field team helped to identify dwellings, inuksuit, caches, hearths, kayak related structures and other features.

The most recent work near Rankin Inlet has been carried out by Golder between 2008 and 2018 in the form of archaeology baseline assessments and mitigation programs for the Meliadine Gold Project. This began in 2008 with assessment of the All-weather access road (AWAR) alignment and adjacent borrow sources extending between Rankin Inlet and the Meliadine Mine site (Blower 2008). This was followed in 2010 by mitigation of sites along the AWAR and assessment of additional laydown areas and borrow sources (Murphy 2011). Investigations in 2011 included additional mitigation of sites along the AWAR and a site near the proposed Discovery camp, as well as assessment of the mine footprint (Ross 2012). The 2012 investigation included monitoring of sites along the AWAR, assessment of proposed drill target areas, proposed Discovery haul road and hamlet bypass road, and mitigation of sites within 30 m of the proposed mine footprint (Ross 2014). This included assessment of a series of drill target areas extending southeast from Meliadine Lake to within 4 km of the Hudson Bay coast. The 2016 investigation included assessment of revised portions of the Rankin Inlet bypass road, borrow pit expansion along the AWAR, site revisits, and excavation of a Thule pit house site near the Narrows of Meliadine Lake (Young 2016). In 2017 assessment focussed on examining proposed mine development areas including the Tailings Storage Area, Emulsion Esker Borrow, an ATV trail bypassing the mine site, the Rankin Inlet Bypass Road extension, and revisiting sites recorded in the 1970's along the Meliadine East Esker to obtain coordinate and status updates (Young 2018). In 2018 the investigations included further expansion of the Meliadine East Esker borrow pit, as well as baseline studies for potential future infrastructure areas near the mine site. The results of the combined eight years of assessment resulted in the recording of 53 new archaeological sites.

6.0 CULTURAL SETTING

6.1 Pre-contact Period

A brief outline of the regional culture history can be summarized as a result of the archaeological work conducted in the Barrenlands and Hudson Bay coast since the early 20th century. It should be noted that throughout the millennia, caribou greatly influenced subsistence patterns for people in the region. The annual migration patterns of these animals would dictate the seasonal rounds of the highly mobile hunting and gathering populations that exploited both terrestrial and marine resources.

The glaciers that covered the Barrenlands of Nunavut receded after 9,000 BP. The Tyrell Sea then inundated lands bordering the current extent of the Hudson Bay coastline until approximately 5,000 BP (Dyke 2004; Morlan 2005). As a result, it is only after this time that human occupation of the Project area was possible.

Although not present in the Project area, Northern Plano (8,000 to 6,500 BP) is the earliest recognized archaeological tradition in the Barrenlands of Canada and has been documented over 400 km to the west along Grant and Aberdeen Lakes. It is characterized by projectile points similar in form to Agate Basin points found in the plains of North America (Gordon 1996; Noble 1971). It is believed that this population spread into the area from the south as the climate improved after deglaciation, perhaps following the caribou as they migrated beyond the treeline to the tundra of the Barrenlands. The characteristic long lanceolate points with tapered and ground bases were manufactured largely out of quartzite. Radiocarbon dates from the Migod site (KkLn- 4) on Grant Lake and nearby KkLn-2 suggest that Northern Plano dates from at least 8,000 years BP (Gordon 1975). The concentration of Northern Plano materials on Grant Lake suggest the Dubawnt and Thelon Rivers were major caribou migration corridors exploited by Northern Plano peoples (Gordon 1996).

Approximately 6,500 years ago, Northern Plano evolved into Shield Archaic (6,500 to 3,500 BP) (Gordon 1996). This cultural development coincided with a warming period that resulted in the expansion of the boreal forest as far north as Dubawnt Lake. Projectile points from this period were also manufactured primarily out of quartzite, but differed from the preceding Northern Plano Tradition in that they were “side-notched lance heads with ground, rocker [convex] bases” (Gordon 1996). This period is also poorly represented in the archaeological record. Friesen (1989) has suggested that the Shield Archaic peoples were more adapted to the Canadian Shield and boreal forest environments of the subarctic, and as such, may only have had a marginal presence in Barrenland environments. Characteristic stone tools include corner-notched projectile points, wedges, and a variety of knives and scrapers (Gordon 1996).

The Shield Archaic Tradition was followed by the Pre-Dorset Tradition beginning approximately 4,000 years ago. The Pre-Dorset Tradition represents the first peoples to enter the Canadian high arctic with origins in the western arctic and Siberia (Maxwell 1984). Pre-Dorset is part of the Arctic Small Tool Tradition (ASTt) and is characterized archaeologically by very small, finely retouched tools manufactured from fine grained, banded chert and quartz. Distinct tools include burins, burin spalls, microblades and microcores, and end and side blades used for harpoons and arrows. Dwellings consist of small summer tent rings marked with a ring of boulders, and winter houses of small oval areas with mid-passages and fire boxes built of vertical rock slabs. Although primarily adapted to coastal environments, subsequent cooling trends adversely affected maritime subsistence patterns. As a result, some Pre-Dorset people were forced further south and inland to exploit migrating caribou herds on the Barrenlands approximately 3,500 BP. Pre-Dorset sites have been found as far south as northern Alberta, Saskatchewan and Manitoba (Gordon 1996). Pre-Dorset may represent the earliest occupation in the Project region as Linnamae (1977) has suggested evidence of Pre-Dorset occupation along the Meliadine River at sites KfJm-20 and 48. This is based largely on the presence of typologically distinct artifacts including burins, burin spalls and microblades.

Beginning approximately 2,600 BP, the Pre-Dorset culture develops into the Dorset culture and would persist through to 1,000 BP (Maxwell 1984; Park and Stenton 1998). In terms of material culture, the majority of stylistic traits continue from Pre-Dorset times with only slight variation. Antler and ivory harpoon heads are present throughout representing a stylistic progression from open to closed socket varieties. A variety of stone tools made from cherts and quartz crystal occur, including burins, burin spalls, spoke shave, end and side scrapers, harpoon endblades, microblades, bone awl, and ivory needles. Dorset is well known for miniature bone, antler and ivory carvings likely related to shamanistic activities, depicting bears, sea mammals, caribou, birds and humans in naturalistic and stylized forms (Maxwell 1984; Park and Stenton 1998). Coastal camp sites indicate the importance of sea mammals; however, terrestrial mammal hunting is also evident. Dorset sites have also been recorded near good fishing locations and stone weirs. An increase in snow knives, sled shoes and stone lamps suggest an emphasis toward sea ice hunting and successful adaptation to a colder climate (Maxwell 1984). Dorset peoples used a variety of dwelling types based on seasonal needs. Winter snow houses are inferred based on presence of snow knives, and summer/fall dwellings are represented by tent rings of large boulders, ovals of small rocks, and rectangular areas with a central platform of stone slabs dividing the area in two halves (variously identified as fire boxes, mid-passages, or food preparation centres). Linnamae (1977) has suggested that at least four sites in the Rankin Inlet area (KeJm-1, 10; KgJm-10 and 22) may date to the Dorset period based on dwelling similarities (stone paved areas, mid-passage houses), presence of stone box structures, and lithic assemblage similarities.

Beginning approximately A.D. 1000, the Dorset culture is replaced by another cultural group that spread eastward across the Canadian arctic known as Thule (McGhee 1984). The Thule Culture has origins in Alaska and their movement corresponds with a warming trend that saw a reduction in seasonal pack ice that enabled expansion of bow head whales eastward. As the whales moved east so too did Thule hunters. As a result, there

was a rapid initial expansion of Thule peoples across the Canadian high arctic beginning approximately A.D. 1000. By A.D. 1200 to 1300 Thule had spread into the southern arctic and along the coasts of Hudson Bay. Thule were efficiently adapted to marine hunting in open water using umiaks, kayaks and harpoons, hunting land mammals with bow and arrow, and fishing with fish spears and trident. The Thule material culture is characterized by a variety of antler, ivory and bone harpoon heads, slate blade knives and end blades, ulus, ground stone adze, soapstone lamps, bow drill, and snow goggles. Thule dwellings consisted of round to oval semi-subterranean houses with rear sleeping platforms paved with gravel or stone slabs, cold-trap entrance tunnels, and roof framed with whale ribs or wood poles and covered with sod or skins (McGhee 1984; Linnamae1977). There is also evidence of domed winter snowhouses that were likely adopted from the previous Dorset culture. Thule persisted through to approximately A.D. 1600 throughout the arctic and became identified as the historic Inuit groups that were encountered by early European explorers. Linnamae (1977) identified at least five sites in the Rankin Inlet region as Thule based on radiocarbon dates from semi-subterranean houses (KgJm-7, 8, 9; KfJm-3 and 32). These sites date between the 13th and 17th centuries. Radiocarbon dates from the Thule pit house excavation at KiJi-3 at Chesterfield Inlet returned a date of 810 +/- 100 BP or approximately A.D. 1205 (McCartney 1977).

Contemporaneous with Dorset and Thule cultures found mainly along the coast, a cultural tradition known as Taltheilei was occurring on the interior Barrenlands. The Taltheilei Tradition dates from approximately 2,600 to 200 BP (Gordon 1996). This Tradition represents a separate cultural migration of peoples from the west adapted to a primarily terrestrial caribou subsistence. They are generally regarded as ancestral Dené and are best known archaeologically from the Northwest Territories and western regions of Nunavut. The material culture of the Taltheilei Tradition is characterized by a continuum of stone lanceolate and notched points, distinct discoidal hide-working tools known as chithos, and a variety of scraping tools. This archaeological culture has been divided into three Periods based on projectile point style: the Early Period (2,600 to 1,800 BP) characterized by long stemmed points; the Middle Period (1,800 to 1,300 BP) by un-shouldered lanceolate points; and the Late Period (1,300 to 200 BP) by small side and corner-notched points (Arima 1984; Gordon 1996).

It is not clear if the Taltheilei Tradition was present along the Rankin Inlet coast as no archaeological sites in the region have been definitively assigned to this cultural affiliation. Linnamae (1977) has suggested that at least two projectile points with tapering and stemmed bases found at Thule sites KgJm-8 and KfJm-3 may belong to Taltheilei. Owing to the evident Dorset presence in the region, it is possible that the Taltheilei Tradition may have only been present in the Late Period. During historic times, Chipewyan groups (descendants of Taltheilei) were known to occupy the interior Barrenlands west of the Hudson Bay coast at least seasonally (Smith 1981).

6.2 Historic Period

Early European explorers, whalers and traders began to visit the west coast of Hudson Bay between 1612 and 1717 (Fossett 2001). Fur trade posts were established in Hudson Bay beginning in the 1670's; however, trading attempts with Inuit were sporadic owing to cross cultural conflict (First Nations - Inuit and European-Inuit) and ice conditions (Government of Northwest Territories 1991). Prince of Wales Fort was established at the mouth of the Churchill River in 1717 and from 1720, sloops sailed irregularly to Marble Island off the coast of Rankin Inlet to encourage trade with Inuit (Arima 1984). Prior to 1718, European traders and explorers recorded no signs of Inuit inhabitants along the coast, suggesting a period of abandonment south of Chesterfield Inlet by Inuit groups. This has been attributed to cooling climatic conditions that resulted in challenging environmental conditions (Fossett 2001). This seems to be supported archaeologically as there are no documented Thule sites along the coast that postdate the 1500's. However, Linnamae (1977) suggests that while there does not appear to be any Thule sites on the coast during this period, sites have been found further inland along Meliadine Lake dating through to the 17th century, suggesting that there was not complete abandonment of the region.

It was not until 1718 that there is a documented re-emergence of Inuit living along the west coast of Hudson Bay. The apparent abandonment and re-occupation seems to correlate with the Neo-boreal Climatic Episode and a mass migration of Inuit from Coronation Gulf (Burch 1978; Fossett 2001). This Climatic Episode, also known as the Little Ice Age was a period of rapid and consistent cooling on a global scale beginning in 1550 and lasting to approximately 1850. It intensified between 1645 and 1715 and the effect was particularly harsh in the Coronation Gulf. Burch (1979) and Taylor (1963) suggest this resulted in a migration of people from Coronation Gulf sometime after 1650 AD, with a movement of people southeast across the Barrens to the Middle and Upper Thelon River. Stevenson (1997) more recently suggests a two phase migration occurred. The first phase was a movement to the Thelon Woods and Beverly Lake area around the mid-15th Century; the second phase occurred sometime in the mid to late 18th century that resulted in a further movement of people down the Thelon River to Chesterfield Inlet, and along the Hudson Bay coast. The descendants of these people became known as the modern Caribou Inuit who have occupied much of the interior Barrenlands and west coast of Hudson Bay for the last 300 years. The region is dominated by historic Inuit sites, which are characterized by stone features including Inuksuit, tent rings, caches, hunting blinds and kayak stands.

It was also during this early historic period that Dené groups, decimated by European disease, and worsening climate, largely abandoned the Barrenlands in favour of the forests to the south to more effectively engage in the fur trade (Gordon 1996). As a result of these cultural and environmental developments, combined with the increasing presence of whalers and traders in the region, by the mid-19th century Inuit-European contact had increased (Arima 1984).

Early notable European exploration of the region includes James Knight of the Hudson's Bay Company (HBC). While searching for the Northwest Passage he ran aground on Marble Island in 1721 (Neatby 1984). Inuit accounts indicated that he and all crew members perished. Samuel Hearne would later discover a number of graves and the remains of Knight's ships off Marble Island in 1767. In 1762 William Christopher of the HBC explored Chesterfield Inlet reaching Baker Lake. Hearne would later embark on an inland expedition of the Barrenlands on behalf of the HBC that would see him journey from Fort Prince of Wales on the Churchill River to the mouth of the Coppermine River between 1769 and 1772 (Tyrell 1911).

The first formal scientific exploration of the Barrenlands region would not occur until the expedition of Joseph Tyrrell of the Geological Survey of Canada (Tyrrell 1894, 1898). In 1893 Tyrrell and his brother James travelled north from Lake Athabasca, eventually ascending the Dubawnt River to the Thelon River, then eastward through Aberdeen and Baker lakes to Chesterfield Inlet, and south along the Hudson Bay coast before turning inland at the Churchill River. In 1894 Tyrrell (1985, 1898) led a second expedition that would see him ascend the Reindeer River to the Kazan River, then east towards the Hudson Bay coast via the Ferguson River. He then descended south along the coastline before turning inland again at the Churchill River. In 1900 James Tyrrell led his own expedition, this time travelling eastward from Great Slave Lake along a series of rivers and lakes to the Thelon River, with members of his party travelling on to Chesterfield Inlet. At the turn of the century David Hanbury (1900; 1903) also explored and mapped the rivers of the Barrenlands in two separate expeditions. He travelled westward through the region by canoe in 1898 to 1899 from Chesterfield Inlet, along the Thelon River to Great Slave Lake. In the second expedition of 1901, he travelled eastward along a similar route, this time embarking from Great Slave Lake. In 1922 Knud Rasmussen entered the region as part of the Fifth Thule Expedition (Rasmussen 1926). Part of the expedition sailed along the west coast of Hudson Bay and members of the party travelled inland from Chesterfield Inlet to Baker Lake, then south along the Kazan River to Yathkyed Lake to conduct geographic and ethnographic research.

The 20th century would bring more changes to the Inuit living on and near the west coast of Hudson Bay. As commercial whaling came to an end in the early part of the century, Inuit began to participate in the fur trade (Government of Northwest Territories 1991). Between 1911 and 1914 Chesterfield Inlet saw the establishment of a Hudson's Bay Company post, followed by a Roman Catholic Mission and a Northwest Mounted Police

detachment. In 1930 Ste. Theresa Hospital was built at Chesterfield Inlet and by 1951 the first school in the Kivalliq Region was built here. Chesterfield Inlet was recognized as a major center of the arctic, serving as a trans-shipment centre for the HBC, and a medical and education centre. However, in 1957 the North Rankin Nickel Mine began operations near Rankin Inlet. It would soon take over as the administrative center in the Kivalliq Region as the Federal government began a settlement program moving local Inuit into communities such as Baker Lake, Chesterfield Inlet, and Rankin Inlet (Government of Northwest Territories 1991).

7.0 METHODS

7.1 Desktop Evaluation

Criteria for determining archaeological potential of landscape typically considers such things as proximity to water, elevated landforms, previously recorded sites, traditional land use areas, and traditional trail systems if known. Water features such as lakes and rivers were important not only for food resources, but also as a mode of travel for precontact and contemporary groups moving across the landscape. Archaeological sites such as campsites are often found along the shores of major lakes and rivers. Non-habitation sites associated with resource or subsistence activities (e.g., hunting, quarrying) can occur inland distant from water. These sites typically occur in proximity to known animal habitat or migration corridors, bedrock exposures or other geological formations that provide suitable material for stone tool production, or prominent landforms that provide vistas or lookouts to observe the surrounding landscape. High potential landforms typically include:

- Eskers: these landforms were used as natural human and caribou travel corridors, they provided unique wildlife habitat (e.g., fox, grizzly bear dens), served as lookouts for game, provided cobbles for stone tool manufacture, and are well drained and suitable for encampments.
- Lake and stream shorelines: these features provided access to fresh water and fish, caribou migration routes, and well-drained, elevated landforms adjacent to these waterbodies were desirable for camping.
- Isthmus, peninsulas, narrows or portage separating lakes: these landforms influence migration behaviour and often correspond with caribou crossings and hunting/lookout sites.
- Bedrock outcrops: these landforms may contain quartz veins that were quarried as a lithic resource, and are elevated to potentially serve as lookouts and/or suitable locations for marker placement (e.g., inuksuk, marker rocks).
- Smaller esker remnants, knolls and deflated patches of gravel: these landforms often occur as small, dry “island” features in poorly drained tundra that could support short term resting areas or camps, provide a source of lithic material, or serve as lookout areas.
- Beach ridges: elevated shorelines of former lake or coastal margins resulting from isostatic rebound often contain camp sites, even though they may be distant from contemporary lake margins. Along the west coast of Hudson Bay the rate of isostatic rebound is approximately 1 m per century.

In contrast to the above, areas not amenable to human occupation or exploitation are considered to have low archaeological potential. This includes low, poorly-drained areas such as bogs, fens, and some shorelines, steeply sloped landforms and bedrock faces, inland areas and closed drainage systems that are difficult to access.

With the above criteria in mind, areas identified for reconnaissance in the 2019 study area included:

- the shore and peninsulas of Enterprise Lake where potential camp locations were being considered;

- broad linear ridges between unnamed lakes toward the southwest boundary where potential camp locations were being considered;
- an esker located approximately 1 km south of the southwest study area boundary where a camp location was being considered;
- a prominent upland near western boundary known as Quaituk Hill; and
- areas adjacent to previously recorded site KgJk-1 that included upland knolls/ridges and a stream adjacent to an unnamed lake.

Once flying within the study area, other landforms or areas observed to exhibit potential would also be examined as part of the general aerial reconnaissance if time allowed, as well as an examination of drilling locations in low potential areas.

7.2 Field Investigation

All 2019 field work was conducted under a valid Class II Nunavut Archaeologist Permit issued by GN-CH. The field program consisted of a combination of aerial and pedestrian reconnaissance to assess proposed camp and drill locations within the 2019 study area.

Low level helicopter reconnaissance was carried out along pre-identified areas and landforms to search for surface features and evaluate archaeological potential identified during the desktop exercise. Only areas exhibiting archaeological potential were further examined through ground truthing. This involved pedestrian reconnaissance consisting of a team of three people (Golder archaeologist, Solstice lead geologist and local assistant) walking transects along landforms such as natural shorelines, terraces, ridges, knolls and bedrock outcrops. Spacing between transects varied depending on the size and nature of development areas or constraints of landforms

The ground surface was examined to identify cultural features such as tent rings, hearths, qarmaqs, caches, inuksuit, or hunting blinds. Exposures and deflated areas were inspected for artifacts such as formed stone or organic tools, and lithic debitage related to quarrying/tool making activities. The location, nature, and size of identified sites were then documented with hand-held GPS and digital photos. Field notes were taken to describe terrain, map sites, and record feature metrics.

Site assessment was not undertaken as this was a strictly inventory and reconnaissance program. As a result, sites were not disturbed though shovel testing or deconstruction of features, and no artifacts were collected. Sites were defined based solely on their surface expression.

The results of the field work are included in this written submission to the GN-CH as required by the archaeological permit conditions. All identified sites were documented to a level suitable for site inventory forms and submitted to the GN-CH archaeology sites database. Resulting GPS coordinates of archaeological sites and features were passed on to Solstice to assist with Project planning.

8.0 RESULTS

8.1 Enterprise Lake Camp Options and Drilling Area

A low-level aerial reconnaissance was conducted along the perimeter of Enterprise Lake to examine three potential camp options being considered along defined peninsulas (Figure 2). It was observed that the shoreline along the lake was relatively featureless, low-lying and often poorly drained. Tundra vegetation extended through to the shore with few elevated ridges or cobble fields to provide construction materials to build potential archaeological features. Caribou trails were observed paralleling portions of the northern shore.

The three peninsulas were examined by air as part of the reconnaissance and all were considered to have low potential (Photos 1 to 3). Ground truthing was conducted along the northernmost peninsula exhibiting slightly higher relief and more boulders. Approximately 550 m of the ridge crest was examined through pedestrian transects (Photo 4). Surface visibility was limited because of lichen and moss growth, with no deflated exposures. Occasional cobbles and boulders were observed but no cultural features were noted. At least two drill collars were observed on the south slope of the peninsula related to past exploration activities by Shear Minerals (Photo 5).

Although specific locations were not known at the time of survey, Solstice is proposing to drill 10 to 15 holes in an arc extending southeast of Enterprise Lake. The landscape in this area is characterized by low-lying, featureless terrain with poor drainage (Photo 6). An aerial examination did not identify any eskers, ridges or other upland features in the vicinity considered to have archaeology potential and no cultural features were observed.

No archaeological resources were identified along the shore of Enterprise Lake or adjacent drilling areas as a result of aerial and pedestrian reconnaissance and the archaeological potential is generally considered low. There are no concerns with proposed exploration activities occurring in this area.

Photo 1: Looking northwest along south peninsula and potential field camp location, Enterprise Lake

Photo 2: Looking northwest along central peninsula and potential field camp location, Enterprise Lake

Photo 3: Looking northwest along northern peninsula and potential field camp location, Enterprise Lake

Photo 4: Looking northwest along northern peninsula during ground truthing, Enterprise Lake

Photo 5: Looking south across historic drill collar along northern peninsula during ground truthing, Enterprise Lake

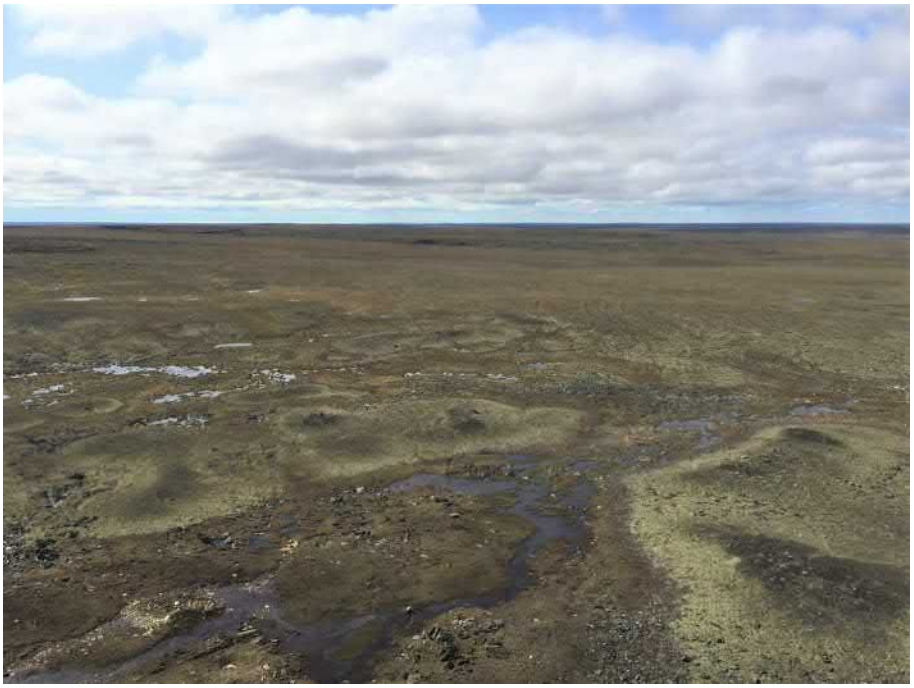

Photo 6: Looking north across terrain of proposed drilling area southeast of Enterprise Lake

8.2 Quaituk Hill

Quaituk Hill is a prominent landform located approximately 3 km west of Enterprise Lake. Although no specific exploration activity is planned for the hill proper, Solstice is considering potential drill holes in the vicinity to the south. The hill is prominent on the landscape and is currently used as a landmark by locals travelling overland between the communities of Chesterfield Inlet and Rankin Inlet (Ian Russell, pers. comm.). The lights from the radio towers placed by Agnico Eagle between the Meliadine mine and Rankin Inlet are used to orient travellers at night.

Quaituk Hill was first examined by low-level aerial passes. It has an abrupt escarpment along its southern margin and a gentler slope along the northern margin (Photos 7 and 8). The hill itself is comprised of a combination of bedrock outcrops and large surficial boulders. Low wetlands are found to the east and an unnamed lake lies approximately 1.5 km to the west. The hill provides an excellent view of the surrounding landscape in all directions. Both the Meliadine Mine (approximately 37 km to the west) and Dunnedin Field Camp (about 5 km to the south) are visible from the summit.

A pedestrian reconnaissance was conducted along an approximately 450 m stretch of the hill crest. Transects were walked clockwise travelling to the northwest edge of the hill before turning southeast towards the escarpment and then back to the helicopter. The hill was typified by very dense, large boulder fields and intermittent vegetated areas. During the pedestrian reconnaissance, one archaeological site (KgJk-6) was documented towards the western margin of the summit. It is discussed in further detail in Section 8.7.

At the base of the southern escarpment the terrain transitions to a broad, slight swale that is poorly drained with standing water (Photo 9). The lower swale extends approximately 400 m south along a terrace to a second abrupt escarpment that marks the next elevation change. A low-level helicopter transect was flown along this low area and second escarpment ridge and no archaeological features were observed (Photo 10).

Although Solstice does not have any exploration activity planned for the summit of Quaituk Hill, they are considering placing a limited number of drill holes within the swale at the base of the south escarpment. This

area is poorly drained and considered to have low archaeological potential. As a result, there are no concerns. However, if further exploration activities are planned for well drained areas or the summit of the Quaituk Hill upland, additional assessment should be undertaken.

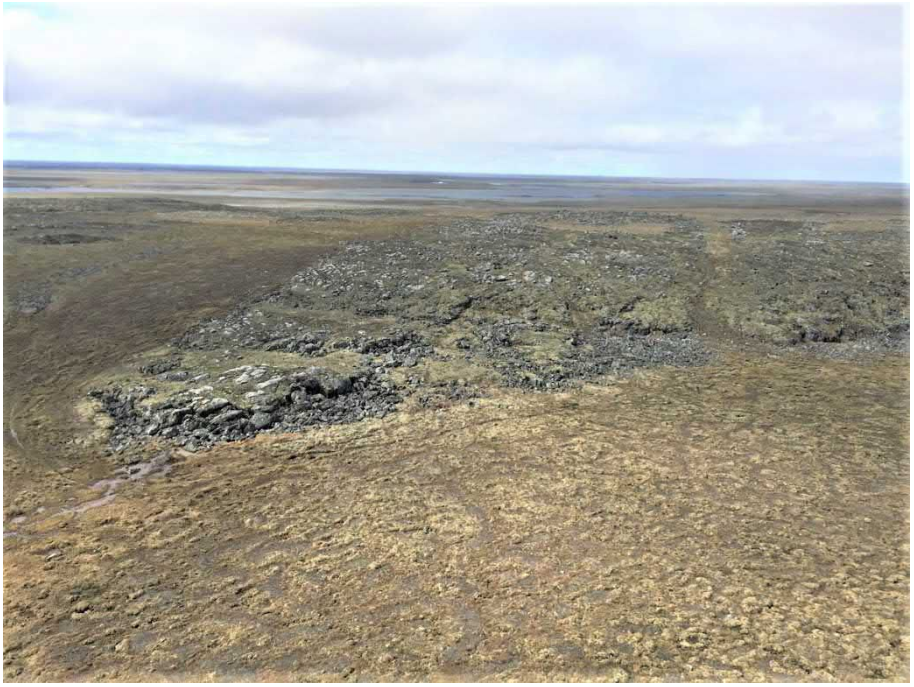

Photo 7: Quaituk Hill, looking southwest

Photo 8: Looking west along south escarpment of Quaituk Hill

Photo 9: Looking south from Quaituk Hill escarpment across poorly drained swale where drilling could potentially occur

Photo 10: Looking southwest across second escarpment south of Quaituk Hill

8.3 Esker Camp Option

An option for a field camp location was also considered on an esker located approximately 1 km south of the 2019 study area (Figure 2). An aerial reconnaissance was conducted along the length of this approximately 1.5 km long landform oriented northwest to southeast. The esker is broad and flat towards the north end with a thin tundra vegetation, and gradually narrows to a cobble covered ridge with deflated exposures along the southern crest (Photos 11 and 12). Small ponds and wetlands are located adjacent to the northeast, with two slightly larger ponds off the north end of the esker.

No obvious stone features were noted from the air, but the elevated landform was considered to have archaeology potential. As a result, pedestrian transects were walked along the crest of the esker from south to north. The well drained landform provides a good view of the surrounding landscape and adjacent wetlands. Although caribou trails were not observed, caribou antlers covered with thick lichen and moss were noted. The boulder field towards the south end of the esker was examined for potential features such as caches, hunting blinds or tent rings (Photo 13). Quartz cobbles were noted but no cores or lithic scatters. Deflated gravel exposures along the length of the esker were examined for potential artifacts such as lithic flakes or tools (Photos 14). Despite the good surface exposure, no artifacts were observed.

No archaeological features or artifacts were identified along the esker during aerial reconnaissance or pedestrian traverse. There are no concerns with potential placement of an exploration field camp on this landform.

Photo 11: Looking northwest along northern portion of esker and potential field camp location

Photo 12: Looking southeast along southern extent of esker and potential field camp location

Photo 13: Looking northwest along southern extent of esker while conducting pedestrian reconnaissance.

Photo 14: Looking northwest along northern extent of esker while conducting pedestrian reconnaissance.

8.4 Areas Adjacent to KgJk-1

Although the areas adjacent to previously recorded site KgJk-1 were not considered for drilling activity, a brief aerial reconnaissance along the north shore of the unnamed lake and adjacent landforms was undertaken as it was considered to have archaeological potential (Figure 2). The terrain in this area becomes more rugged with elevated ridges and knolls, boulder fields and developed drainages. KgJk-1 is located just outside the current claim boundary and consists of a single open cache feature on a ridge overlooking a small pond. It will continue to be avoided during proposed exploration activities and was not revisited in 2019.

A low-level aerial reconnaissance was conducted along the north shore of the unnamed lake; however no obvious surface features were observed (Photo 15). The helicopter touched down on a narrow esker adjacent to a small pond approximately 600 m northeast of KgJk-1 (Photo 16). Pedestrian traverses were then walked along this feature and southeast along a series of boulder strewn knolls and ridges for approximately 450 m before looping back north around a small pond towards a drainage. The drainage consisted of a swift flowing stream with slight rapids that drained a smaller lake to the north (Photo 17). The area surrounding the stream consisted of broad, flat bedrock exposures and adjacent elevated ridges. The area was briefly examined before continuing west back to the helicopter.

No archaeological features or artifacts were identified in this area during aerial reconnaissance or pedestrian traverse. However, the terrain along and adjacent to the north shore of this unnamed lake is considered to have better archaeological potential than many areas in the current study area. Further assessment of this area should be undertaken if drilling or development is considered in the future.

Photo 15: Looking northwest along north shore of unnamed lake

Photo 16: Looking east along narrow esker adjacent to pond

Photo 17: Looking north across swift flowing stream between lakes

8.5 Unnamed Lake and Linear Ridge Surveys

After examining areas adjacent to KgJk-1, surveys continued with aerial reconnaissance along the shoreline of a large unnamed lake to the northwest (Figure 2). The drainage between this and the southern unnamed lake consisted of a low-lying cobble/boulder outwash plain. As a result, the aerial transect instead tracked along a portion of an inland ridge before flying along the north shore. Unlike the lake to the southeast, the shoreline of the northwest lake was less impressive with relatively flat, featureless terrain to the water edge (Photos 18 and 19). The landscape was well vegetated with tundra lichens and moss with fewer boulders and cobbles. No bedrock outcrops, eskers or boulder ridges were observed.

The aerial reconnaissance continued to the south of this lake and along a broad, linear upland with slight relief (Photo 20). This landform was examined as another potential area for a field camp. The low-level aerial transect proceeded northwest along the landform where caribou trails were noted; however, the terrain was relatively featureless and poorly drained and considered to have low archaeology potential. Solstice determined the area was not a suitable location for a field camp.

Aerial transects continued towards the south end of the next largest lake to the northwest to examine landscape potential. The intervening area between lakes was characterized by broad and rugged boulder fields, as well as flat, vegetated tundra plains exhibiting limited archaeology potential (Photos 21 and 22).

Photo 18: Looking northwest along shoreline of unnamed lake

Photo 19: Looking southwest across peninsula in unnamed lake

Photo 20: Looking northwest across upland landform and potential field camp area between lakes

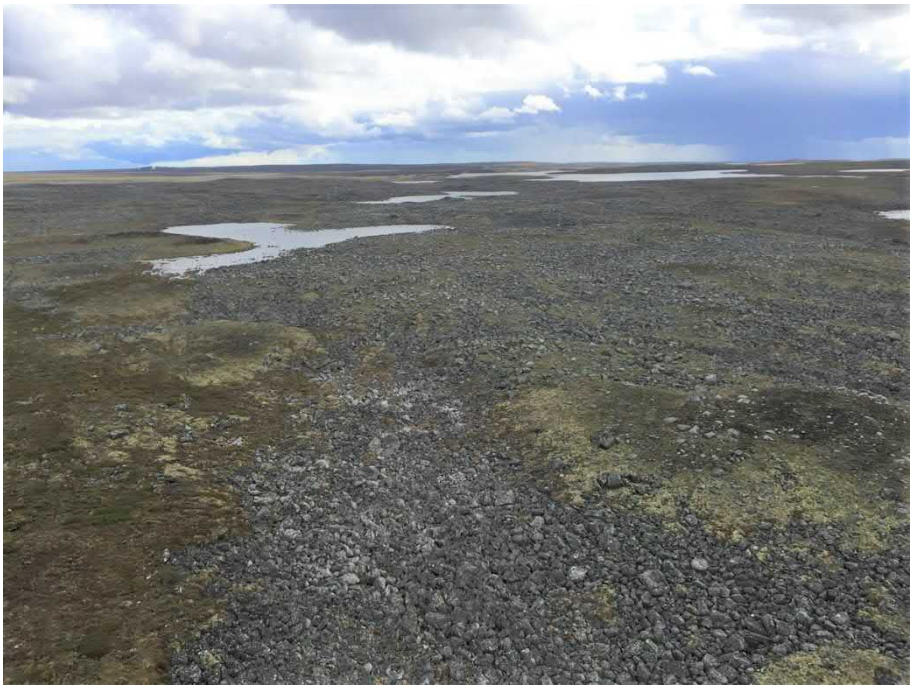

Photo 21: Looking southeast across boulder field

Photo 22: Looking east across tundra plain

8.6 Esker Near Southwest Claim Boundary

Approximately 15 km west of the 2019 study area and 2 km southeast of Parallel Lake is a large esker feature near the southwest corner of the Solstice Claim Boundary. Although no immediate exploration work is planned for this area, Solstice thought it would be worthwhile examining on the flight back to Rankin Inlet understanding the archaeological potential of the landform. The esker is over 2 km long and consists of narrow sinuous ridges to the north that converge on a broad, flat topped landform to the south with distinct beach ridges along the side slopes. The esker is approximately 25 km from Rankin Inlet. As a result, there are extensive ATV trails along the ridge from local land use (Photo 23).

An aerial reconnaissance was initiated along the esker. However, a herd of approximately 150 caribou was observed approaching and the survey was stopped and the helicopter left the area so as not to disturb the animals. However, while exiting the area a tent ring was observed near the base of the eastern slope of the esker approximately 2.2. km south of Parallel Lake (Photo 24). Approximately 1.5 km further south of the tent ring and outside the Solstice claim boundary, two potential stone cache features were noted immediately adjacent to the ATV trail on the crest of the esker (Photo 25). Given their proximity to contemporary use trails and apparent recent construction, these features likely represent recent use sites. Regardless, this esker is a significant landform that has archaeological potential. In the event future drilling activities are planned near this esker, further archaeological surveys should be carried out.

Photo 23: Looking south along esker and ATV trails near southwest corner of Solstice Claim Boundary

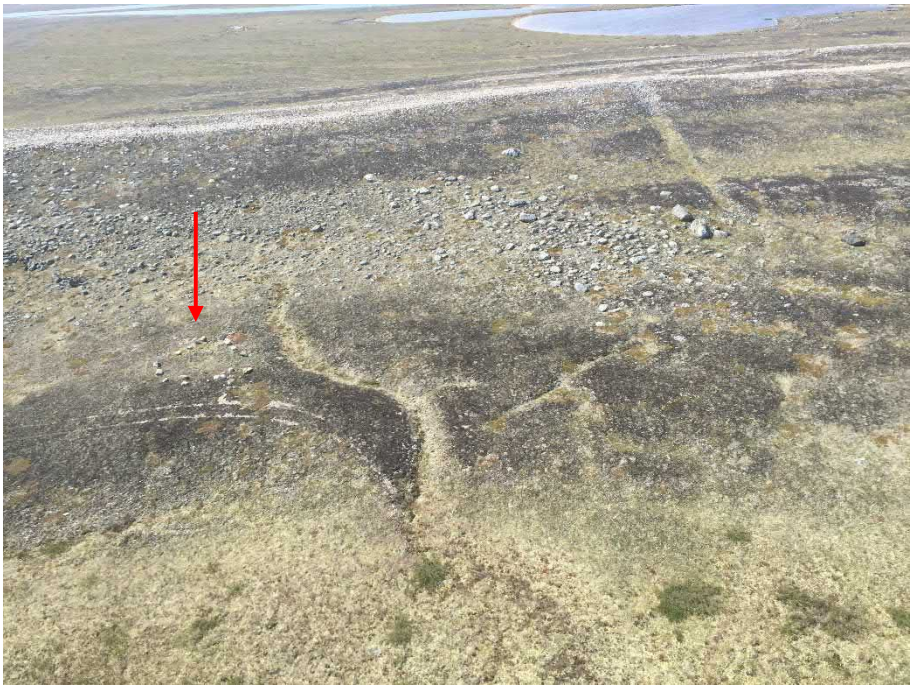

Photo 24: Looking southwest across tent ring at base of esker near Solstice Claim Boundary

Photo 25: Looking west towards cache feature on esker near Solstice Claim Boundary

8.7 Newly Recorded Site (KgJk-6)

One new archaeological site was recorded during the 2019 field program. KgJk-6 is located along the northwestern margin of Quaituk Hill approximately 2.6 km west of Enterprise Lake (Figure 2). This hill has a commanding view of the surrounding landscape. The site consists of three tent rings or dwelling features (Figure 3; Table 1). The two most northern features (WPT 133 and 134) are located within 4 m of each other (Photos 26 and 27) and a third (WPT132) is located 30 m to the southeast (Photo 28). All have small diameters no greater than 2 m. All seem purposefully placed on small, flat bedrock exposures. This may have been an effort to stay off the surrounding moss and lichen vegetation that was quite water saturated at the time of the site visit. The tent rings are made from both large boulders and smaller cobbles. The two northern features have an opening to the west and seem to be oriented with a view in this direction. All rocks that comprise the features exhibit consistent lichen growth on all surfaces suggesting they have not been recently placed.

Approximately 150 m to the northeast, along the eastern margin of the hill, a potential linear rock alignment was noted. It is comprised of seven boulders oriented north-south and runs perpendicular to the crest of the hill (Photo 29). The feature is approximately 2 m long and exhibits consistent lichen growth amongst the boulders suggesting they have been in this configuration for some time. The location of the feature provides a good view of the lakes and minor drainages at the base of the hill to the east and it could represent a hunting blind.

KgJk-6 will currently be avoided by proposed exploration activities. It is recommended that site features continue to be avoided by a minimum 30 m buffer. If this is not possible then further mitigation measures will need to be devised in coordination with GN-CH.

576000
576100
576200
6996600
6995900
6995800

135
134
133
KgJk-6
132

LEGEND

ARTIFACT PLOTS

- POSSIBLE BLIND
- TENT RING
- SITE DATUM
- SITE BOUNDARY

0 25 50

1:1,000 METRES

REFERENCE(S)

1. BASE DATA OBTAINED FROM GEOGRATIS, © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
2. CONTOURS ADN HILLSHADE CREATED BASED ON DEMS PROVIDED BY THE POLAR GEOSPATIAL CENTER
UNDER NSF-OPP AWARDS 1043681, 1559691, AND 1542736.
PROJECTION: UTM ZONE 19 DATUM: NAD 83

CLIENT
SOLSTICE GOLD

PROJECT
KAHUNA GOLD PROJECT
ARCHAEOLOGICAL IMPACT ASSESSMENT

TITLE
KgJk-6 SITE MAP

CONSULTANT
GOLDER

YYYY-MM-DD	2020-03-30
DESIGNED	KM
PREPARED	LMS
REVIEWED	
APPROVED	

PROJECT NO.	PHASE	REV.	FIGURE
19124591	4000	A	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: I:\2019\19124591\Mapping\Products\Archaeology\Fig3_19124591-4000_KgJk6_SiteMap_RevA.mxd PRINTED ON: 2020-03-30 AT: 11:04:14 AM

Table 1: KgJk-6 Feature Summary

Waypoint	Feature Type	Size (m)	# of Rocks Observed	Orientation
132	Tent Ring	NR	13 boulders	East - West
133	Tent Ring	2 x 1.5	11 large, 6 small cobbles	East - West
134	Tent Ring	2 x 1.5	11 large boulders	East - West
135	Linear Alignment (potential hunting blind)	2	7 boulders	North - South

NR = not recorded.

Photo 26: Tent ring located on Quaituk Hill with Enterprise Lake visible in the horizon (wpt 133), looking west

Photo 27: Northernmost tent ring (wpt 134) located on Quaituk Hill, looking west

Photo 28: The southernmost tent ring (wpt 132), located on Quaituk Hill, looking northeast

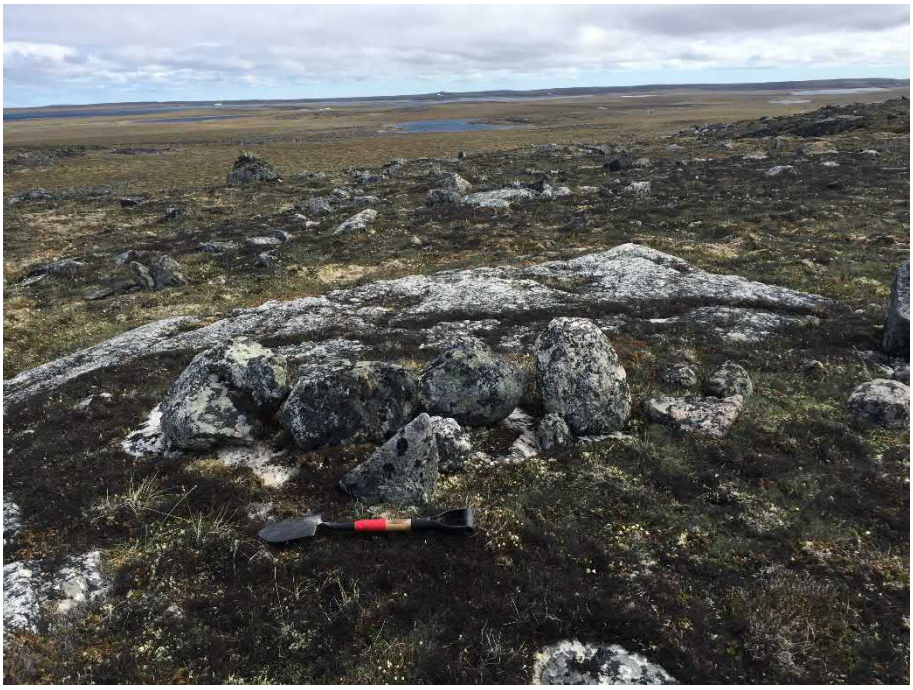

Photo 29: Potential hunting blind located on Quaituk Hill, looking east

9.0 SUMMARY AND RECOMMENDATIONS

Golder completed a reconnaissance and site inventory of a study area within Solstice's Kahuna Gold Project. Aerial and pedestrian examination was undertaken of potential field camp locations and drilling areas, as well as high archaeology potential areas.

As a result of observations during the field program, the landscape of much of the 2019 study area can be characterized as gently undulating, low-lying terrain with many shallow lakes, ponds, and poorly drained areas. Lakes and low ridges have a strong northwest to southeast orientation with either tundra vegetation or cobble outwash plains along interlakes areas. The exceptions were Quaituk Hill along the northwest boundary and upland terrain near the southeast boundary that had visibly higher relief and bedrock exposures. No significant eskers were observed in the study area aside from the previously assessed Dunnedin Camp esker. When compared to other areas previously examined within the Kahuna property such as Josephine Lake/River and associated esker to the northeast, and some of the larger lakes to the southwest that drain more directly into Hudson Bay, much of the 2019 study area is considered to have generally low archaeological potential.

One new archaeological site, KgJk-6, was documented. However, this site, as well as two previously recorded sites within the study area (KgJk-1 and KgJk-2) are not in conflict with currently proposed activities (Table 2). Site and feature coordinates have been provided to Solstice to assist with future exploration planning to ensure continued avoidance by the required minimum 30 m buffer. No archaeological sites were identified in areas where potential drill locations or field camps are being considered and there are no further concerns with these areas. Additional surveys should be undertaken if future exploration activities are proposed for Quaituk Hill or upland areas along the east boundary of the study area.

Table 2: Summary of Archaeological sites within 2019 Study Area

Permit No.	Archaeological Site	Site Description	Landform	Recommendation
2019-28A	KgJk-6	3 tent rings 1 potential blind	Quaituk Hill	Continued avoidance by minimum 30 m buffer
2018-013A	KgJk-2	1 tent ring	Esker	
2016-021A	KgJk-1	1 cache	Boulder Ridge	

This Final Report fulfils the permitting requirements necessary for the completion of archaeological work carried out under Nunavut Archaeologist Permit 2019-28A. Even the most thorough investigation may not identify all archaeological features or artifacts that may be present. Solstice is advised that if unanticipated archaeological materials or features (including but not limited to, tent rings, qarmaqs, inuksuit, caches, lithic and faunal artifacts, or human remains) are encountered during drilling or bulk sampling, all work in the immediate area should cease and the GN-CH contacted for further direction.

Signature Page

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

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PY/BN/pls

https://golderassociates.sharepoint.com/sites/110324/project files/5 technical work/final report/permit 2019-028a 2019 solstice gold final.docx

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