Glacial Geology and Till Sampling; Prosperity Gold Corp. Property, Kiyuk Lake, Nunavut.

Stea Surficial Geology Services

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Prepared for:

Prosperity Goldfields Corp.
Suite 800, 789 West Pender St, Vancouver, B.C.,
V6C 1H2

By:
Rudolf R Stea, Ph.D P.Geo.
Stea Surficial Geology Services
851 Herring Cove Road
Halifax, Nova Scotia
B3R 1Z1

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Summary

This report provides a synthesis of surficial geology and ice flow patterns and a pilot study of gold in till on the Kiyuk Lake Gold Property in the Manitoba-Nunavut border region. Regional surficial data for this compilation was derived from previous mapping and from interpretation of LANDSAT images, high resolution satellite imagery and field ground truthing.

The Kiyuk Lake area is characterized by variable glacial sedimentation and terrains featuring belts of bedrock controlled topography and thin till veneer, interspersed with areas of arcuate till ridges (ribbed moraine), streamlined drift (drumlins, crag and tail hills) and long esker systems with a predominant pattern of southwest (195°) ice flow. Outcrop is rare on the Property and till thicknesses in many areas exceed 10m. Many of the Au occurrences are boulders found in lowland block fields forming barricades around bogs and lowland areas near lakes. These fields are likely solifluction and gelifluction concentrations of normal surface boulders on till surfaces, and therefore auriferous boulders are not in situ and have been transported some distance down-ice and down-slope.

As part of a multi-media geochemical pilot study 44 ~10 kilogram bulk till samples were obtained around and down-ice of the Rusty Showing (Fig. 2) and regionally over the Property in order to test the efficacy of heavy mineral concentrates and gold grain counting in the search for gold in the area. The samples were sent to Overburden Drilling Management in Nepean, Ontario (ODM) where they were initially screened and a sand sized feed tabled to obtain a heavy mineral concentrate (HMC). Gold and other heavy mineral grains were counted and classified into shape categories. Gold grain counting has become a popular method for reconnaissance gold exploration in glaciated terrain and similar mineralogical methods are employed with much success for diamond exploration.

Gold grain counts from tills near and down-ice of the Rusty Showing exceed 1000 grains, with fragile shapes indicating close proximity to the bedrock Au source. The Rusty dispersal fan has a southwestward and southward orientation (185-225°) and anomalous gold grain counts (>10 grains) persisting to at least 2 km down-ice. Abundant gold grains in a sample 400m down-ice of the Rusty outcrop may indicate a mineralized bedrock source within 50m of that sample site. Till samples south of the Cobalt Showing also indicate an undiscovered lode source immediately up-ice of their location in a mineralized boulder field.

The gold grain till data will be assessed together with the results of a Property wide geochemical survey competed in the 2012 field season and follow-up target areas defined on that basis. Visible gold is present in the tills proximal to gold occurrences and easily separated from sandy matrix by panning as the author has demonstrated on site. Cost-effective, bulk till sampling and panning procedures are suggested for follow-up on significant regional geochemical and HMC gold anomalies in this study. The sampling methodology would consist of up-ice transects within the probability sector and offset sample points at 50-100 m intervals. A couple of drill sites are suggested at the Rusty and Cobalt Showings where highly anomalous gold grain counts and pristine grain shapes indicate a nearby lode source of gold.

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Front Figure: Esker North of Kiyuk Lake.

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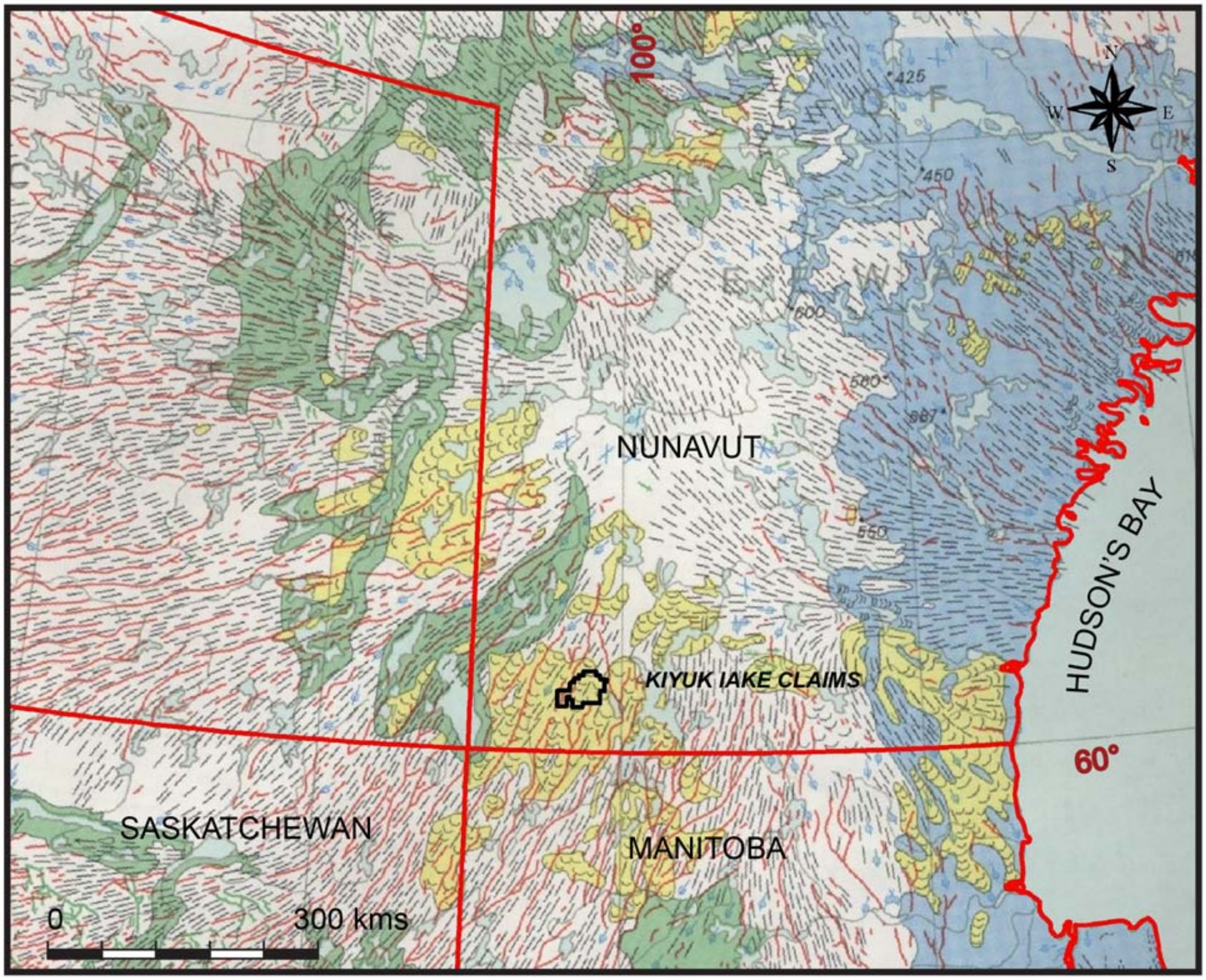

Figure 1. Glacial map of Canada with the location of the Kiyuk Lake Property (after Prest et al., 1968). Black lines =drumlins, moraine, red lines=eskers, yellow=ribbed moraine areas.

Introduction

This report provides a synthesis of surficial geology and ice flow patterns for the Kiyuk Lake Property situated in a relatively underexplored area of the Manitoba-Nunavut border region and host to numerous showings of gold mineralized outcrop and glacially dispersed auriferous boulders. The claim group is located approximately 65 km SW of Ennadai Lake and approximately 50 km north of the southern territorial border shared with Manitoba (Fig. 1).

Included in this report are the results of a geological compilation, remote sensing interpretation and field work and a glacial dispersal orientation study done over a known gold showing (Rusty Showing). These data were collected with the purpose of solving some of the exploration problems the company (Prosperity Goldfields Corp) is expected to face when conducting gold exploration in the glaciated terrain of the Kiyuk Lake Property and provide the necessary data to plan reconnaissance and follow-up surveys over the claim areas. Some of the exploration questions pertinent to the region and claims are summarized as follows:

- Where and how big are the sources of auriferous boulder trains?
- What are the glacial dispersal directions?
- What is the genesis, provenance and stratigraphy of glacial landforms and deposits in the region and how does the nature of glacial sedimentation bear on the dispersal of auriferous debris from ore sources.
- What is the depth to bedrock?
- What are appropriate sampling methodologies and sample preparation methods for glacial tills in the Kiyuk Lake area?
- What are suitable analytical methods for reconnaissance and detailed follow-up prospecting i.e. gold assay vs grain counting?

Regional Ice Flow History

During the last glacial maximum the region west of Hudsons Bay was characterized by a large ice mass called the Keewatin Ice Sheet (Tyrrell, 1898). This ice sheet was later recognized to consist of a linear ice divide running approximately north-south in the region (Lee et al., 1957). The Keewatin Divide was part of the larger Laurentide ice sheet which covered much of northern North America. The shape and size of the Keewatin Ice Divide varied significantly during the last glaciation as a result of changing climates and ice stream dynamics (Dyke and Dredge, 1989). The recent surge of field work in the area sparked by diamond exploration has further developed the understanding of Keewatin glaciers (e.g. McClenaghan et al., 2002). In the last decade, the role of ice streams in large ice sheets has been elaborated and can help to explain the complexity of ice flows in the region (Stokes and Clarke, 2002). In addition, a new understanding of the preservation of landforms under cold-based glaciers can help to unravel seemingly incongruous patterns of flow imprinted on the landscape (Kleman, 1994; Stea, 1994).

The Kiyuk Lake area is characterized by variable glacial sedimentation featuring bedrock and thin till veneer, interspersed with large areas of arcuate till ridges (ribbed moraine), areas of streamlined drift (drumlins, crag and tail hills) and long esker systems. Previous synoptic mapping of glacial landforms (Prest et. al, 1968; Aylsworth and Shilts, 1989; Kleman et al., 2002; Shaw and Sharp, 2010) showed a predominant pattern of southwest ice flow in the map area. This SW flow pattern has been interpreted as emanating from the bifurcating Keewatin Ice Divide to the north (Dyke and Prest, 1987). H. A. Lee (1959) described an early southward flow north of the map area, which predated the formation of the Keewatin Ice Divide. Kleman et al., (2002) attribute this early flow to an Early Wisconsinan (or older?) ice divide.

Methods

Surficial Mapping

Regional surficial data for this compilation was derived from previous surficial mapping (Prest et al., 1968; Aylsworth and Shilts, 1989). In order to get additional ice flow and surficial information LANDSAT images were obtained from the GEOGRATIS

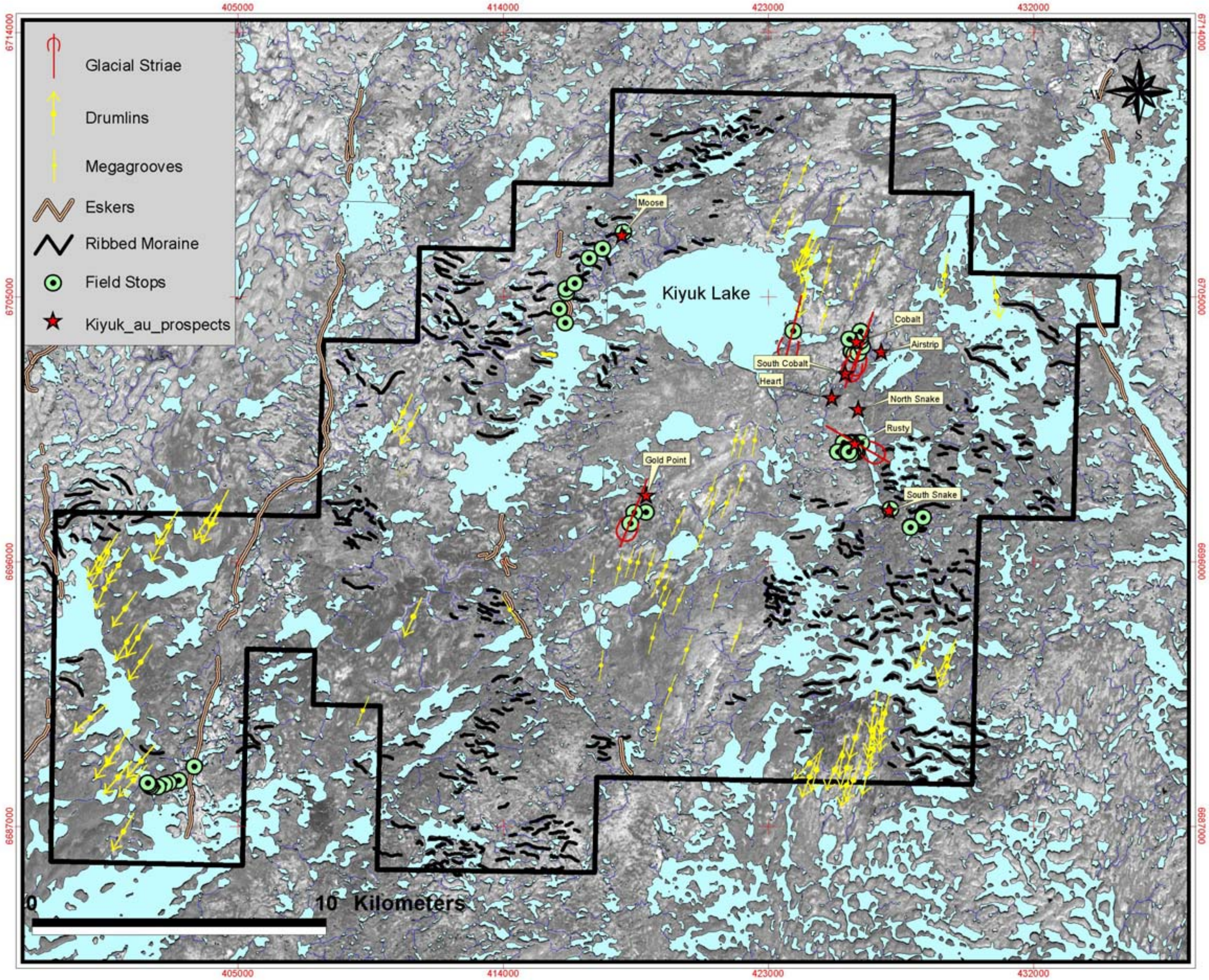

Figure 2. Kiyuk Lake Property (Landsat 7-band 8 image) showing ice flow features, gold showings and field stops in 2012**.**

(http://geogratis.cgdi.gc.ca/clf/en) web site. The panchromatic band (band 8-0.52-0.90 µm) was selected because it has the highest resolution of all the images (15 m pixel size.) Ice flow features can be mapped at a regional scale (>1:50,000) using these images (Kleman et al., 2002). A preliminary surficial map by Aylesworth (1986) was a major source of surficial information for the Kiyuk Lake Property and additional interpretation was done on satellite imagery (0.03 m resolution) provided by the company. These data were compiled into 1 1:50,000 preliminary colour surficial map that was later edited to incorporate field data collected (Map 1). This report provides a detailed description of the surficial units and ice flow patterns on that map.

The author selected sites based on this initial interpretation for field reconnaissance from July 17-July 22, 2012 (Fig. 2). Field work was conducted with these goals,

- Ground truth preliminary maps submitted earlier based on satellite photo and Landsat imagery interpretation (Stea, 2012)
- Help in design and implementation of till sampling programs
- Address exploration questions dealing with surface (Holocene) and glacial (Quaternary) processes

Several areas in the claim groups were selected to visit based on proximity to mapped units based on remote sensing imagery and known gold showings. Two days were spent sampling till for a multi-media geochemical orientation study near the Rusty occurrence also described in detail in Arne (2012) alongside the soil sampling crews and simultaneously mapping the terrain. A total of 53 field stops were made in 6 days of field work (Appendix 1). One day was spent panning collected duplicate samples for gold and one day was utilized in the design of the regional till sampling program.

Till Sampling

As part of the multi-media study 32 ~10 kilogram bulk till samples were obtained around and down-ice of the Rusty Showing (Fig. 2) and regionally in order to test the efficacy of heavy mineral concentrates and grain counting as well as traditional matrix geochemical analyses in the search for gold in the area. Gold dispersal fans (areas with anomalous gold grain counts in till) are documented to be in the order of 1-5 km long in shield areas (Averill, 2001). The size of the Rusty subcropping orebody is not well constrained (Turner, 2012) but a magnetic anomaly of 450m by 250 may define the highest grade portion of the orebody. The sampling grid was oriented east-west with every second line sample offset to cover the gaps in the up-ice sampling line. Samples were then adjusted for location away from bogs and outwash deposits that would mask till and bedrock.

Till samples were taken below the solum at 50-100 cm depths using a shovel and an iron pry bar. The pry bar is essential to loosen boulders commonly found on and below the surface. At each location ~7-11 kg of mostly matrix material was obtained with large pebbles removed by hand. Sample depth, soil depth, till texture and lithology, site location (GPS) and sample number are noted and recorded on sample sheets (Appendix 2). Sample numbers were written on the outside

Figure 3. Till sample site 1528446 (Stop KL-32-Map 1) on top of ribbed moraine south of the Snake occurrence (Appendixes, 1-2).

of bags and sample tags inserted in the bag. Sample numbers are also written on tags and left to mark the site. All sampling sites were digitally photographed.

Analytical Methods

The samples were sent to Overburden Drilling Management in Nepean, Ontario (ODM) where they were initially screened to separate the +2.00 mm size fraction (gravel/sand boundary) from a sand sized table feed then this sand/silt matrix (<2 mm) tabled to obtain a heavy mineral concentrate (HMC). All weights were provided (Appendix 3). Gold and other heavy mineral grains were counted from the heavy mineral separates. Lithology counts are made on the pebble fraction. Gold grains were classified into size and shape categories, and an estimated gold grade in parts per billion of the heavy mineral concentrate calculated based on the size and numbers of gold grains in the sample (Appendix 3). Gold count data from till heavy mineral concentrates were normalized to a constant weight of 10 kg. (e.g. Morris et al., 1998

Gold grain counting has become a popular method for reconnaissance gold exploration in glaciated terrain and similar mineralogical methods are employed with much success for diamond exploration (Averill, 1988; 2001; McClenaghan, 2001). Government till surveys in Canada (e.g., McClenaghan, 1992, 1994; Thorleifson and Kristjansson, 1993; Plouffe, 1995; Bajc, 1996; Goodwin, 2005; Stea et al., 2005; McMartin, 2009) routinely report gold grain abundances in the <2.0 mm heavy mineral fraction of 10 kg till samples. Identifying gold grain dispersal fans in glacial tills has been instrumental in new gold discoveries at Casa Berardi Quebec (Sauerbrei, et al., 1987), Rainy River (Averill, 2001) and the La Ronge Belt in Saskatchewan (Sopuck et al., 1986; Chapman et al., 1990). Gold grains are present everywhere in Canada, with their background abundances ranging from one grain per standard 10 kg exploration sample to more than 10 grains in volcano-sedimentary terrains such as the Abitibi Greenstone Belt (McClenaghan et.al, 1997; Averill, 2001; McClenaghan, 2001). Most gold grain dispersal trains from known sources are relatively short (< 1km-Averill, 2001) but this may be a function of local ice dynamics. Long gold grain dispersal trains (>30 km) are associated with former ice streams in Nunavut (McMartin, 2009).

Gold grain shape analysis is done as part of the ODM package and is an additional reason why mineralogical methods have some advantages over analytical methods. ODM and the Geological Survey of Canada have developed shape categories for gold grains which show an empirical relationship with down-ice distance to the gold lode source (Averill, 1988; DiLabio, 1990). Three classes of transported gold grains have been identified. “Reshaped” grains are largely edge-rounded and have been transported >500m “Modified” grains have angular and rounded edges, and are interpreted as having been transported between 100 and 500m. “Pristine” gold grains have delicate features and angular edges and are believed to be transported a short distance (10-100m? of the source). However these pristine grains can be interpreted in two ways (McClenaghan, 2001):

1. Grains are liberated as free gold directly from a local bedrock source.
2. Grains liberated from sulphide fragments after comminution with a variable transport distance

Henderson and Roy (1995) and McMartin (2009) also suggested that gold grain shape is not always a reliable reflection of transport distance as conditions may vary depending on local glacial dynamics and grain mineralogy. However, use of gold shape ratios which present a proportional scale of grain shapes in concert with gold grain abundance can provide clues to the distance of transport given that a significant proportion of grains will be comminuted in transport. A “proximity” ratio depicting the relative amount of pristine vs reworked grains was established for this project and is determined by this formula:

Proximity ratio=total /reshaped+modified

In this formula a ratio of 1 means the sample contains all distal (reshaped+modified) grains. A proximity ratio of 2 denotes a ratio of 50/50 of local vs distal grains and a ratio greater than 2 means increasing dominance of local pristine angular grains over distal-reshaped and modified grains. The grain counts, grain size data, normalized counts and ratios are given in Appendix 3 merged with the sample location and site attribute data.

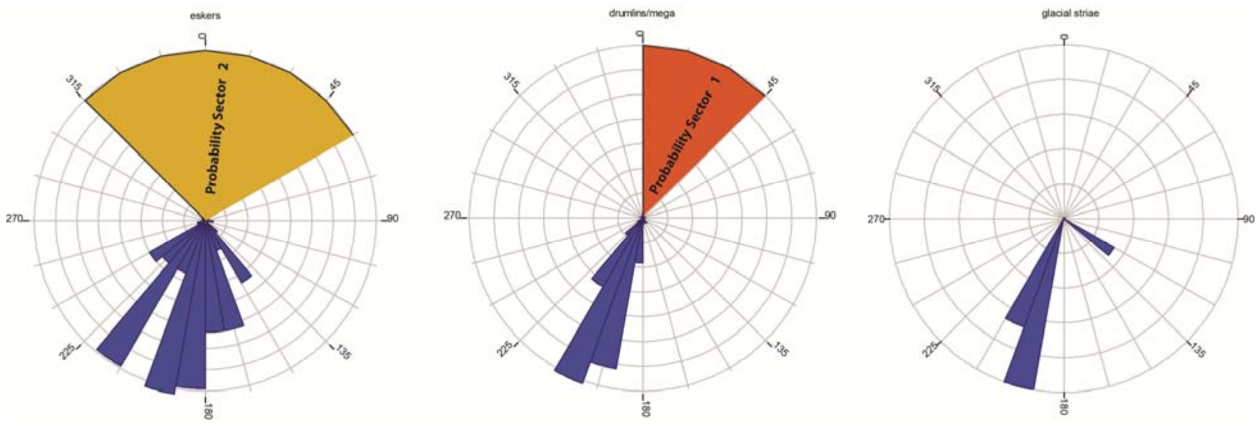

Figure 4. Rose diagrams of esker trends, drumlin/megagroove directions and glacial striae. "Probability sector" of potential up-ice lode sources depicted as coloured region**.**

Results

Glacial Flow Features

Glacial flow at both small and large scales tends to produce linear, flow-parallel landforms. These large scale ice flow-parallel features were mapped from the satellite imagery (Figs. 2, 4).

1. Glacial "megagrooves"; grooves most readily seen in regions of thin till cover and bedrock, 10 to 60 m wide and 0.5-23 km long (eg. Clark, 1993). The sense of flow of these features (which way?) can be determined by widening and truncation down-ice (as in the analogous small-scale erosional features known as nailheads and wedge-striae (Prest, 1983) and in preferential scouring on up-glacier facing slopes (Fig. 5a).

2. Drumlins, crag and tail hills, and fluted till plains. Ideally, drumlins are streamlined hills oriented in the direction of ice flow with a steep up-glacier facing side and a taped down-glacier side (Benn and Evans, 1998).

In some cases megagrooves are glacially enhanced bedrock structure, where joint or fault traces, parallel or sub-parallel to the glacial flow, are selectively eroded. There may be some question about cause and effect, considering that the sliding glacier bed can be influenced by pre-existing bedrock topography even at a small scale. Megagrooves that are found in closely spaced swarms preferentially inscribed on up-glacier facing stoss slopes, strongly argue for a primary glacial origin (Fig. 5a). The close correspondence of Landsat linears to mapped glacial striae in the map area verifies the glacial significance of most of these mapped linears.

Large and small scale glacial flow landforms (striae, drumlins/megagrooves) show that the Kiyuk Lake Property was largely shaped by a southwestward ice flow phase (185°-210°; Fig. 4; Map 1). Flow in the eastern part of the Property is more southward (~195°) whereas the western part exhibits a southwestward trend (~215°). Hauseux (2007) reported striae on bedrock trending 15° south of Kiyuk Lake but a northeastward flow is highly unlikely, so it is assumed that the trend of these striae was the opposite reading on the compass or 195°. Striae mapped by the author trend generally southwestward (194-202°: Figs. 2, 4). At one site near the Rusty Showing the author observed striae and a roche moutonnée (whaleback) trending southeastward.

Eskers which reflect late stage configuration of the Keewatin Ice Divide indicate a shift to a more south-south-eastward flow (Fig. 4). This flow event is believed to represent a "deglacial fan" (Kleman, 1994), a brief re-orientation of flow during ice sheet decay caused by downwasting or ice stream drawdown of the main ice divide. Figure 4 shows a rose diagram of the ice flow vectors and also the "probability" sector of up-ice source areas (Hirvas and Nenonen, 1990). Auriferous boulders found on the property would most likely be found up-ice within this primary provenance envelope (1) and geochemical survey grids should be aligned perpendicular to this probability sector and south-westward flow pattern. The author also presents a secondary, broader envelope (probability sector 2; Fig. 4) based on deglacial patterns of ice flow encompass some aspects of south-southeastward flow. It is not certain how much erosion and deposition occurred during the deglacial phase.

Terrain Units

Glaciofluvial Deposits

On the Property sand and gravel deposits are found associated with sinuous ridges (eskers-see front photo) and mounds (kames) (Map 1). Eskers are ridges composed of waterlain sediments, deposited by fast-flowing meltwater in glacier crevasses or tunnels (Benn and Evans, 1998). Most eskers are aligned parallel to glacier flow, reflecting the ice-thickness dependent hydraulic gradient of the former ice sheet (e.g. Figs. 2, 4). Thicknesses vary widely from >10m in mounds and ridges to less than 1m and bedrock is exposed sporadically, due to meltwater erosion. These deposits on the Property consist of coarse-fine sand and gravel and bouldery, gravel deposits that reveal themselves as pronounced whitish patches on air photos and satellite imagery (Fig. 5b). Glaciofluvial deposits represent a second derivative of a bedrock source, reworked by meltwater from debris-in-transit within the glacier. They can be considered detrimental to prospecting for local rocks and geochemical exploration using soils because they contain englacial (far-travelled) material which effectively dilutes local bedrock content. Glaciofluvial deposits only comprise a small portion of the claims area.

Till Blanket and Ridged till

Till deposits are unsorted deposits of boulders/gravel/mud deposited directly by a glacier; (Dreimanis, 1989). Till sections often exhibit a lower (basal) facies formed near the base of glacier and considered as a "first derivative" of bedrock (Shilts, 1976) overlain by melt-out facies (usually surface boulders) derived from debris in transit within the ice sheet. Most of the Property is blanketed by a thick cover of till (s) and bedrock exposure is rare. Without significant stratigraphic exposures, estimates of till thickness are difficult, but based on the height of morainal landforms thicknesses likely vary from 4- 20m. In general topographic expression is controlled by glacial deposits rather than by underlying bedrock. Most of the area

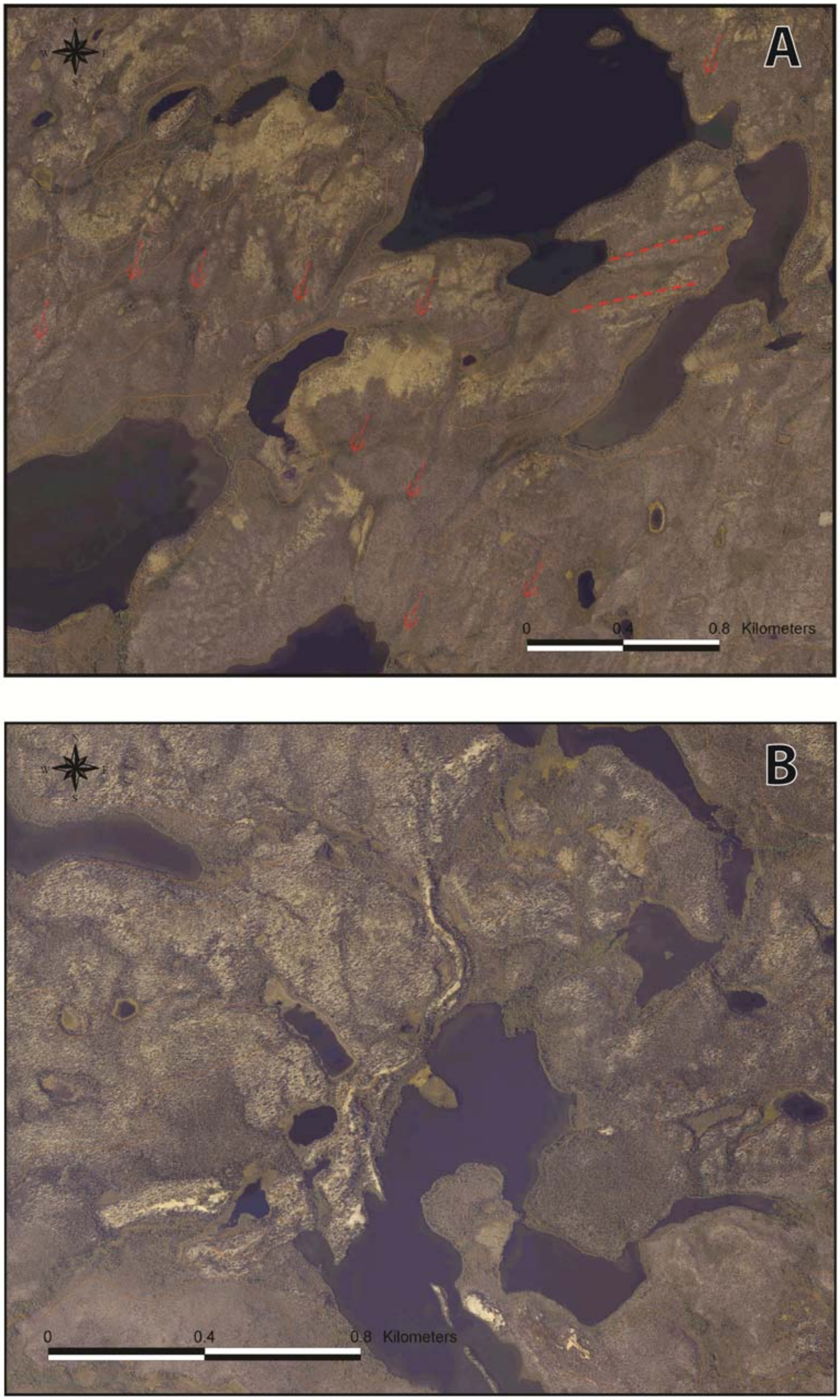

Figure 5A. Megagrooves or glacial erosional troughs (arrows). Dashed line strike/structural ridge. Location-**Map 1). (B)** Esker ridge (white sinuous ridge) is characterized by coalescent, crescentic ridges termed ribbed moraines up to 20m high that are more or less transverse to ice flow. These ridges are readily identifiable on satellite and LANDSAT high-altitude imagery (Benn and Evans, 1998; Map 1; Fig. 6a). Regionally, (Fig. 1) ribbed moraines are associated with, or are gradational to ice-parallel drumlin landforms (Map 1). These features are interpreted as due to changing ice dynamics, related to zones of compressive ice flow and the development of shear planes in the basal ice (Bouchard, 1989).

The till deposits of the Kiyuk Lake area are clast to matrix supported, sandy diamictons, with a high percentage of surface boulders, making them difficult to excavate for sampling (Fig. 6b). Clast lithologies are variable depending on up-ice geology, but metasedimentary rocks are generally dominant with minor granitoid and volcanic rocks and distinctive, weathered, brown dolostone erratics. Most clasts (>90%) are locally derived (<500m) bedrock lithologies.

It has been proposed that both drumlins and ribbed moraines are erosional remnants of a catastrophic subglacial megaflood (Shaw and Sharpe, 1986). The implications of this theory for mineral exploration are manifold. If there are widespread flood deposits, then ore dispersal may be considerably more complex than previously envisioned. However, previous mapping has shown that most of the Nunavut shield area region is blanketed by an unmodified glacial till with striated outcrops and dispersal studies in general show that ore rocks and minerals are dispersed from lode sources following a negative exponential law (Shilts, 1996), incompatible with catastrophic meltwater erosion and deposition. Meltwater action was likely focussed in former subglacial channels, crevasses and proglacial spillways.

Till Veneer

Upland areas around the known gold showings south of Kiyuk Lake (Fig. 2; Map 1) on the Property exhibit a thin but continuous cover of stony, sandy till (<2-7m) with rare outcrop (<1%). Surface topography appears to be controlled by underlying bedrock as a west and southwest trending structural grain is discernible parallel to mapped bedding and fault features (Turner, 2012). This terrain tends to be relatively flat and featureless with occasional felsenmeer (boulder fields) and numerous small bogs and fens (Map 1). Thin till areas will generally more closely reflect local bedrock than thicker till terrains and be suitable for prospecting and geochemical/geophysical surveys.

Boulder Fields

Many of the occurrences of Au mineralized boulders are found in lowland block fields like that pictured near the Cobalt showing (Map 1; Fig. 7). These fields have been termed **felsenmeer** ('sea of rock)' and although not mapped a distinct surficial unit often form distinct rims around bogs and adjacent lowland areas near lakes. . In a true felsenmeer, freeze-thaw weathering has broken up the top layer of bedrock, covering the underlying rock formation with jagged angular boulders (Dahl, 1966). Freeze-thaw weathering occurs when water that is trapped along microcracks in rock expands and contracts due to fluctuations in temperature above and below the freezing point. Felsenmeers are formed *in situ*, meaning that they are not transported during or after their creation. However boulder fields in the arctic are not always in situ. Most of the fields observed by the author in the study area appear to be underlain by glacial

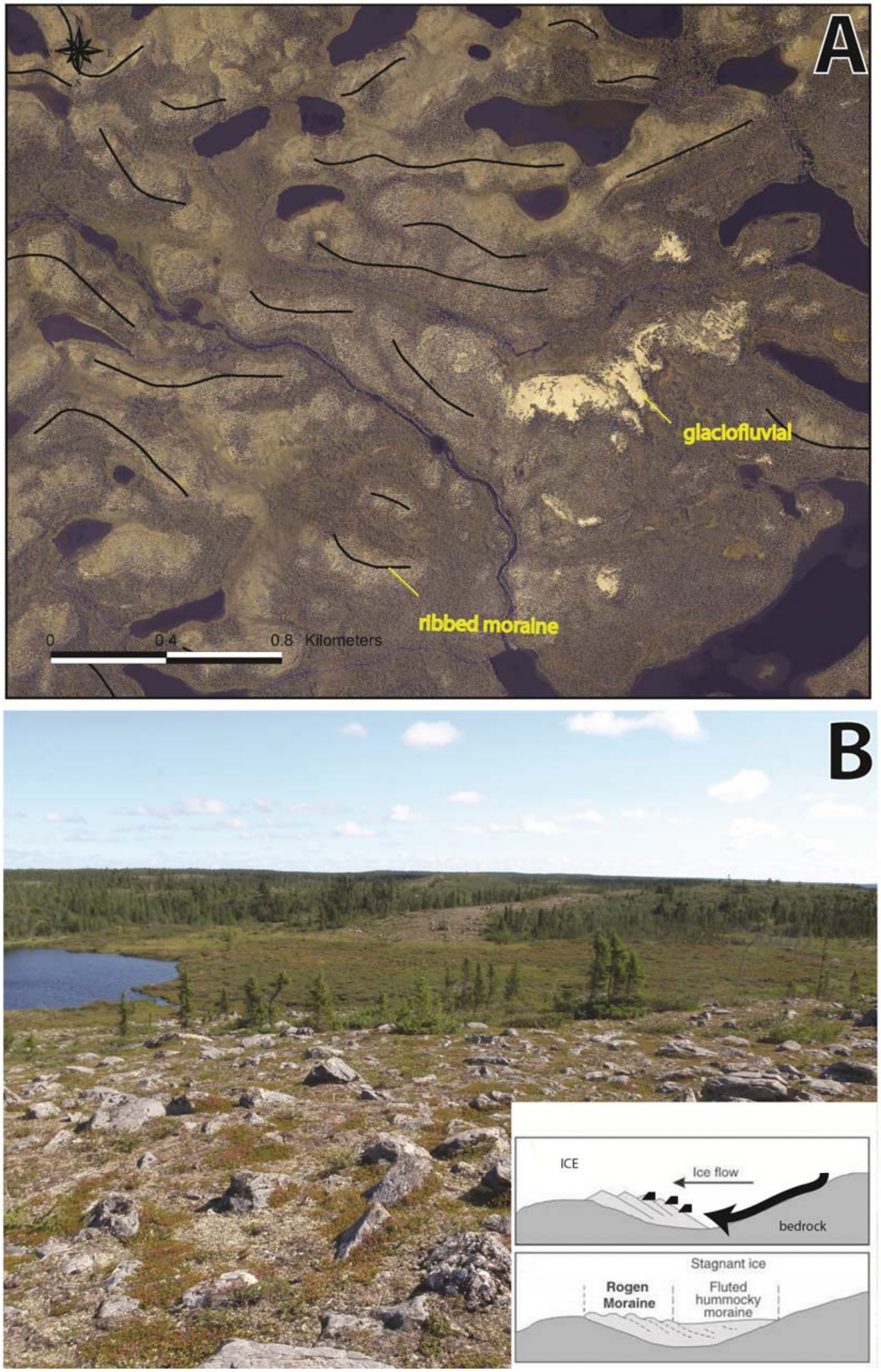

Figure 6. (A) Ribbed moraine (till) and glaciofluvial (white-kames) Loc. Map 1. (**B**) Boulder surface on top of ribbed moraine (Stop Kl-41/Map 1) local boulder derivation-inset. Ribbed moraine formation (after Bouchard, 1989)

Figure 7. Boulder field south of the Cobalt showing with abundant Au-mineralized clasts. Till sample 1528441 taken from the frost boil (INSET) produced ~1000 gold grains (Appendix 3)

till as evidenced by frost boils in the boulder fields (Fig. 7) and drill hole data. These fields are likely solifluction and gelifluction concentrations of normal surface boulders on till surfaces. This means that mineralized boulders are not in situ and have been transported some distance down-ice and down-slope. Because mineralized structures in the area are sub-parallel to ice flow some success has been achieved by drilling at boulder locations because the lode source likely has down-ice extension but some drill holes (Cobalt) have only encountered barren rock.

Bedrock and Thin Till

The areas designated as bedrock and thin till have a greater percentage of bedrock outcrop than the till veneer areas at about 10% (Map 1). This percentage is based on the assumption that boulder accumulation areas evident in satellite imagery (Fig 4b) are felsenmeer (frost shattered bedrock) and not boulder accumulations in lowlands due to downslope movement by incremental frost jacking or meltwater deposits. True bedrock exposure mapped in the region is considerably less than 10% of the total and previous descriptions usually refer to a dearth of bedrock throughout the entire region (i.e, Hauseux, 1993; 2007). Till thicknesses throughout this area are thought to vary between <1-5m maximum and the topography (hills/valleys) are predominately bedrock controlled.

Rusty Gold Grain Dispersal Study

Thirty two till samples were taken around the surface outcropping Rusty showing (Figs. 2, 8) and analyzed for gold grain content. The Rusty showing is a 3m topographic high consisting of intensely hematized, clast-supported (mosaic) Tavani conglomerate (Turner, 2012). The matrix, which comprises 10 to 30% of the rock, is composed of actinolite/tremolite, magnetite, calcite and rock flour. Up to 3% sulfides (pyrrhotite, pyrite) are present in some samples. The Rusty showing has been tested with one (1) vertical hole and was mineralized from surface to the bottom with an average grade of 1.92 g/t (over 157.6 m) and higher grade sections including a peak of 46.9 g/t over 1.5 m @ 28.0 m depth. The deposits sits on a magnetic high area which has not been drill tested (Fig. 8; Turner, 2012)

The extent of the Rusty deposit is poorly known but mineralized boulders extend 500 m south of the showing (Chris Pennimpede, pers. comm., 2012). Till samples (1528401; 1528405) taken near the showing and over the magnetic horizon hosting the showing revealed highly anomalous gold grain counts both exceeding 1000 grains and the most proximal sample with 2324 grains (Appendix 3; normalized to 10 kg). The vast majority of these grains were pristine and the proximity ratios of till samples over the magnetic anomaly ranged from 7-10, meaning that there were 7 to 10 times more fragile gold grains than eroded ones (Fig. 10). Estimates of gold content in the till heavy mineral concentrates in these samples varied from 12 to 32 g/t (Appendix 3). Gold grains varied in size from 3 to 300 microns in diameter and molybdenite was found as an accessory mineral but no other sulphides were noted attesting to the highly oxidized nature of the surface deposit.

Samples 1528407 and 1528408 were located 200m south of the magnetic anomaly with significant amounts of gold (Fig. 8). Sample 1528408 exceeded 1000 grains and also exhibited a proximity ratio >5, indicating that the lode source is within ~50m.

The grain counts exponentially decline in a down-ice direction from the showing and magnetic anomaly (Fig. 8). The dispersal fan has a more westward orientation (225°) than the modal ice flow vectors (195°-210°) suggesting a greater range in ice flows or contributions from other sources. Anomalous gold grain counts (>10 grains) persist to minimum of 2 km down-ice and there is a marked southward “lobe” of highly anomalous counts also not parallel to the main ice flow vectors. It is suggested that this lobe is not solely a result of glacial dispersal, but rather a possible extension of the mineralized zone southward from the main showing.

Regional Gold Grain Results.

Cobalt Showing

The Cobalt Showing lies ~ 1 km to the NW of the Airstrip Showing and is hosted in similar siltstone and conglomeratic rocks of the Tavani Formation (Figs, 2; 9). It is defined by one mineralized outcrop (~8 m by 4 m) and locally derived boulders and frost heaves. The width and continuity to depth of the mineralization are unknown. Local float sampling south of Cobalt Lake included numerous samples above 1 g/t Au and ranging up to 15.29 g/t Au.

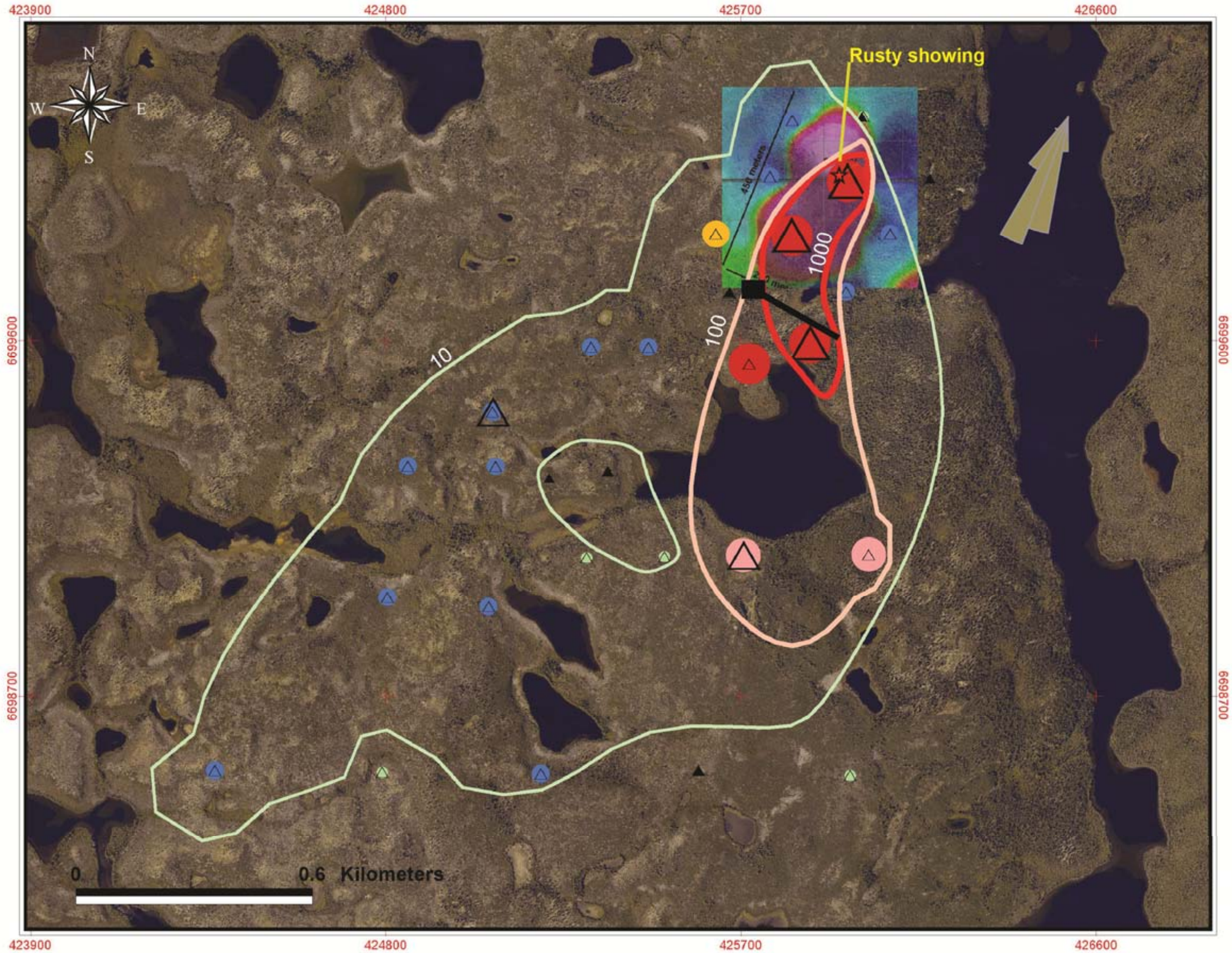

Figure 8. Dispersal and shape criteria of gold grains in till HMC's around the Rusty Showing**.** Legend on Figure 9. Location of follow up drill hole.

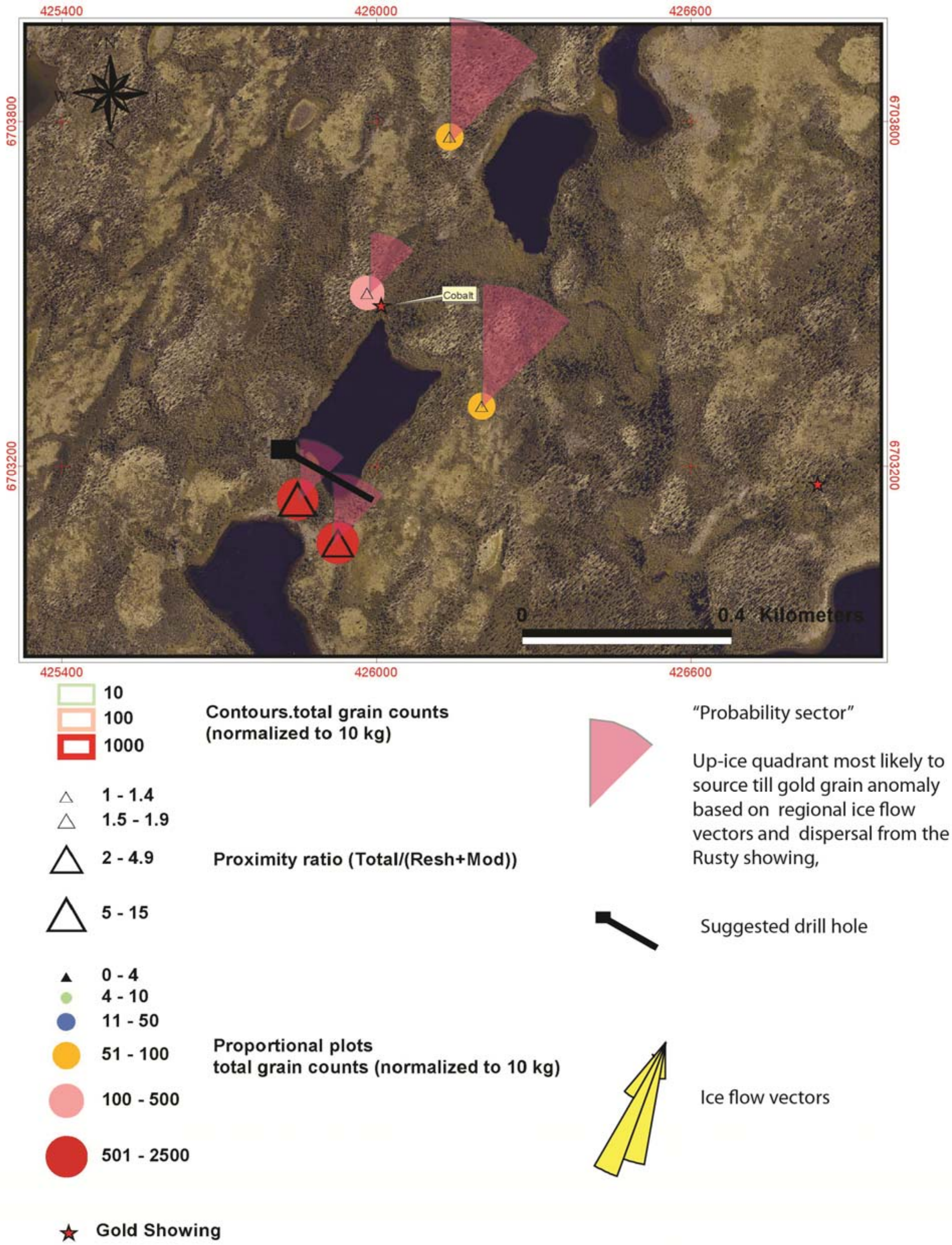

Figure 9. Till samples and gold grain counts around the Cobalt Showing. Legend for Figures 8 and 9.

Two till samples were taken in frost boils from a boulder field south of Cobalt Lake (1528441; 1528443; Appendix 1) that was the source of many mineralized boulders. These tills contained 925 and 690 gold grains respectively and proximity ratios of 5.7 and 2.7 (Appendix 3). The decrease in counts and ratio of the southerly sample suggests that the source is north and likely within 50 m up-ice of the sample closest to the lake. Figure 9 shows a probability sector of likely lode source regions up-ice of these anomalous samples. Previous drill holes (CS11-001,006, 007) encountered thick till (12m) and may have been drilled just down-ice of the mineralized zone. The presence of thick till in the vicinity of the anomalies can complicate the dispersal pattern if the uppermost auriferous till related to a late ice flow not well represented in landforms in the region.

Till samples taken around the Cobalt Showing all showed significant gold grain counts (>50 grains), but with distal proximity ratios, suggesting multiple sources along a wide mineralized belt that may be largely confined to the NW-SE broad topographic low area defined by lakes and geophysical anomalies.

Other areas

Sample 1528450 was taken near the Moose Showing although its relation to the actual showing is uncertain (Appendixes 1-3). It contains a significant gold grain anomaly (>60 grains), but with a distal proximity ratio. Mineralized boulders to the northeast suggest other lode sources for gold in the area.

Sample 1528446 taken close to the South Snake occurrence shows slightly above background counts (8 grains) and suggests that the bedrock source for the mineralized boulders which comprise the occurrence may be derived some kilometers up-ice.

Three samples taken in the western part of the Property, one south of Gold Point (1528448; Appendix 1) and the others in the extreme southwestern part (1528465; 1528466: Appendix 1) revealed background counts of gold (1-4 grains).

Recommendations

Bedrock Mapping using Till

Most of the Prosperity Goldfields claims are covered by glacial till largely in the form of ribbed moraines with thicknesses of 10m or more (till blanket; Stea, 2012). Ribbed moraines occur in groups that are often closely and regularly spaced with individual moraines as large, wavy ridges oriented transverse to ice flow. The most likely theory for formation is that local debris-rich basal ice are sheared and stacked, or folded during compressive ice flow (Linden et al., 2008; Fig. 6B).

Till is defined as a “first derivative” of bedrock (Shilts, 1996) and is essentially crushed local rock. With an understanding of the basic principles of glacial processes and dispersal much of

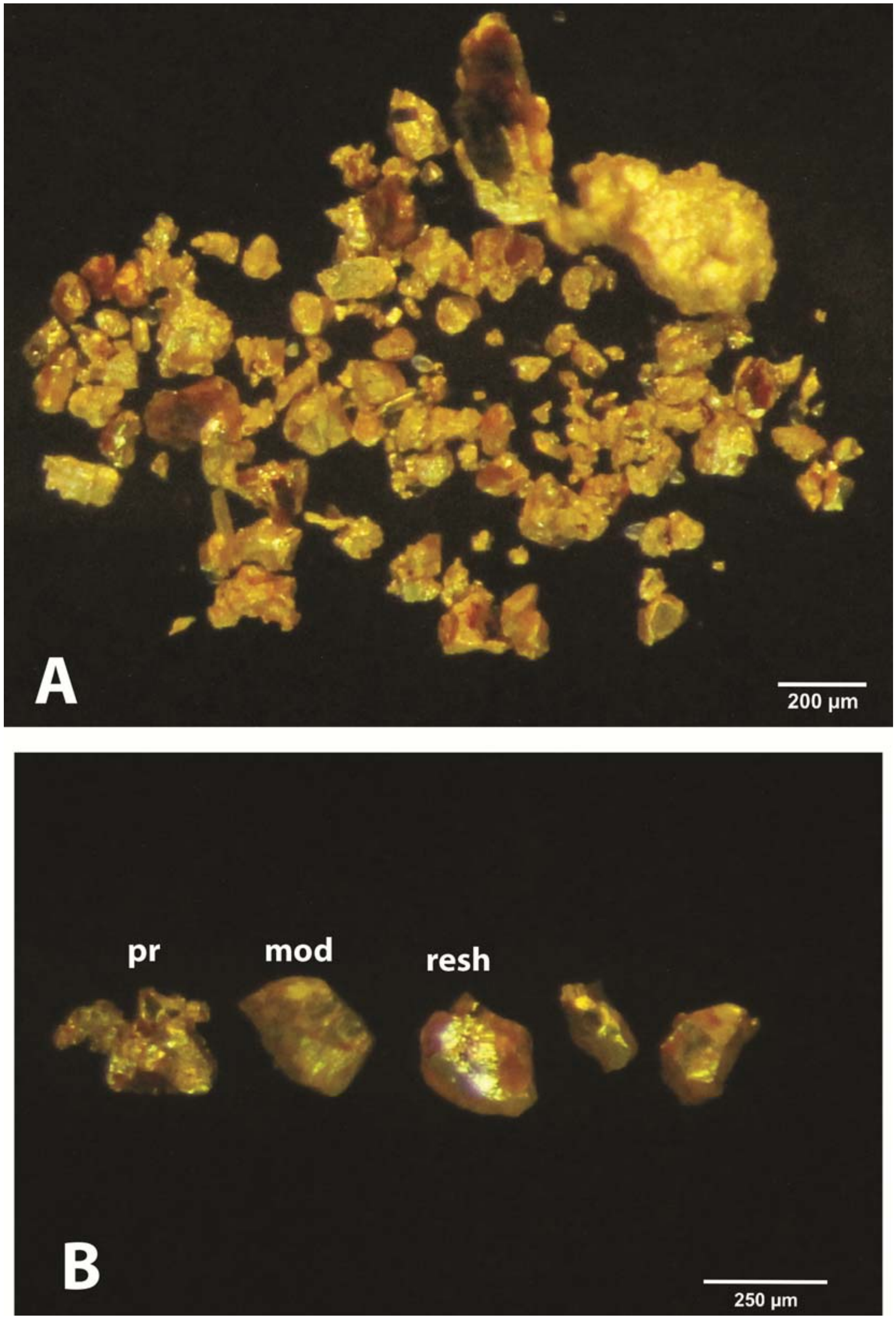

Figure 10. A) Gold grains from sample 1528401 taken near the Rusty Showing. Note the predominance of grains with angular edges (pristine). (B) Gold grains from 1528408. Pristine, reshaped and modified grains.

the area can be mapped based on the abundance of surface boulders which in most of the area are locally-derived. Figure 6B shows the up-ice slope of a ribbed moraine north of Kiyuk Lake where most of the boulders are derived from erosion of the valley in front of the moraine as the model suggests (Inset). Based on the favoured origin of the ribbed moraine and the negative exponential glacial dispersal law (eg. Fig. 8) boulder lithology percentages greater than 90% in till are a robust indication that these rocks represent the immediately up-ice bedrock lithology. Changes in the major percentages of boulder lithologies indicate glacial erosion across up-ice bedrock contacts. Boulder lithologies whose percentages are below 5% can either be far – travelled glacial debris caught higher in the ice, or small volume subcrop which may include mineralized rock. The key to distinguishing the latter are the use of till samples and "micro-boulder" counts using grain counting or geochemical analyses of the till.

Follow-up on Till Gold Anomalies

The gold grain anomaly data will be assessed together with the results of a Property –wide till geochemical survey competed in the 2012 field season and follow-up target areas defined on that basis. This pilot study, however, provides useful insights into glacial dispersal processes, vectors and distances. Visible gold is readily available in the tills proximal to gold occurrences and easily separated from sandy matrix by panning as the author has demonstrated on site. On that basis, I suggest that cost-effective, bulk till sampling/hand panning procedures be adopted for follow-up on significant regional geochemical and HMC grain Au anomalies on the Property. The sampling methodology would involve up-ice transects within the probability sector and offset sample points at 50-100 m intervals (depending on the size and extent of Au anomalies). Samples would then be panned on site near lakes or taken back to a panning facility at camp. The company could consider a mechanical panning device such as a portable Wilfey table concentrator instead of hand panning (http://www.motive-traction.com.au/cgi-bin/engine.pl?Page=page.html&Rec=165). Gold grains would be counted and qualitatively analysed for proximity ratios and after visual examination the HMC's bagged for assay. While sampling along up-ice transects every 10th site could be bagged for grain counting at ODM and sites where significant gold is found during the field season, resampled for quantitative counting and /or HMC assay for gold.

A couple of drill sites have been suggested by the author at the Rusty and Cobalt Showings where highly anomalous gold grain counts and grain shapes indicate a nearby lode source of gold (Figs 8, 9). It appears that there is a significant southward extension of the Rusty Showing based on the grain counting results and the author suggests a drill site to test this. South of the Cobalt Showing, a couple of till samples taken within the mineralized boulder field indicate a proximal lode source. Drilling right at the site of the glacially dispersed mineralized boulders produced negative results, because both the surface boulders and underlying till are transported sediment, translated down-ice from the subcropping mineral source. Drilling 50-100 m up-ice of the mineralized boulders and till samples should produce better results. It is also recommended that drilling (if possible) procedures should include glacial cover (tills) and these sediments sampled for gold. Conventional diamond drill systems can core tills that are silt and clay-rich, but either reverse circulation drilling or a triple tube system has to be employed for sandy and rocky tills. When tills are >10m thick (as at Cobalt and much of the region) the information lost when triconing overburden is significant.

Gold grain counts exceeding 1000 grains and estimated gold assay results of 32g/t in heavy mineral concentrates of glacial tills open the possibility of setting up a placer operation. If the auriferous tills are thick and uniformly enriched in gold, they could potentially be screened and processed through a sluice.

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Appendix 1 Field stop location data and till samples

Abbreviations terrain types

Tv	Till veneer
Tb	Till blanket
Gf	Glaciofluvial
Br	Bedrock
Tv/br	Till veneer overlying bedrock

Abbreviations sedimentary facies description (sed desc)

sdmm-	sandy diamicton matrix supported
sisdmm	silty sandy diamicton matrix supported
bgs	boulder gravelly sand
gs	gravelly sand

Sample number	Stop num	Northing	Easting	Terrain	Sed dest	striae	Photos	Comments	Date/time
	Kl1	6700004.10	425975.34	tv	ssidmm		2	outcrop with mineralized sections till lee side	17-JUL-12 9:39:30AM
panning sample	site 20	6700018.22	426026.51	tv	ssidmm		1	outcrop with tv	
	Kl2	6699997.66	426052.36	br	br	120	2	roche mountonee trending SE	17-JUL-12 10:40:03AM
	Kl3	6700033.72	426121.97	tv	ssidmm		2	thin tillveneer outcrop pink granite erratic	17-JUL-12 11:00:28AM
1527006	Kl4	6700020.49	426175.23	tv	ssidmm		2	baes of rock scarp-fault?	17-JUL-12 11:30:31AM
	Kl5	6700032.44	425828.68	tb	sdmm		2	til becomes sandier, thicker till in mounds	17-JUL-12 1:09:30PM
1528403	Kl6	6700014.97	425774.53	tb	sdmm		2	till blanket mound with boulders	17-JUL-12 1:53:38PM
	Kl7	6699997.78	425627.43	tb	sdmm		2	base of till slope boulder field-mass wasting..doloston	17-JUL-12 2:31:43PM
	Kl8	6700021.03	425565.85	tb	sdmm		2	base of till slope boulder field-mass wasting..doloston	17-JUL-12 3:03:56PM
	Kl9	6699719.07	426024.68	tv	sisdm		2	base of till slope boulder field-mass wasting-thick humus	18-JUL-12 8:21:19AM
	Kl10	6699722.99	425967.37	tv	sisdmm		2	outcrop thin till veneer metasilt bedrock	18-JUL-12 8:52:05AM
	Kl11	6699761.40	425942.05	tv	sisdmm		2	outrop nearby siltstone felsenmeer boulder field	18-JUL-12 9:25:33AM
	Kl12	6699682.15	425872.09	tb	**boulder**		2	boulder field downslope collection type	18-JUL-12 10:20:28AM
	Kl13	6699710.68	425779.80	tv?	**boulder**		2	boulder field grading into bog sample frost boil?	18-JUL-12 10:39:02AM
	Kl14								
	Kl15	6699632.49	425804.73	tv	sdmm		2	mineralized boulder sulhides breccia..bedrock close	18-JUL-12 11:33:11AM
	Kl16	6699717.95	425368.38	tb	sdmm		2	till ridge bouldery ablation mantle, metasilt>90 granite sites 42-48	18-JUL-12 12:23:19PM
1528452	Kl17	6699720.73	425671.60	tb	sisdmm		2	edge of ridge til sample sandy till	18-JUL-12 2:57:05PM
	Kl18	6699718.69	425735.80	tb?	sdmm		2	low lying area near boulder field mixed b/c till sample	18-JUL-12 3:23:50PM
	Kl19	6703135.50	425835.48	tv	boulder		2	boulder field sub ang-sun rounded boulders facetted clasts	19-JUL-12 8:06:15AM
1528441	Kl20	6703114.30	425849.87	tv	boulder		2	frost boil in middle of boulder field. Sisddmm	19-JUL-12 8:41:04AM
1528443	Kl21	6703030.86	425925.84	tv	sisdmm		3	frost boil near granite/dolostone erratics	19-JUL-12 8:52:23AM
	Kl22	6703079.93	426067.41	tv	sdmm	201	5	top of ridge moutonne crag and tail hill striae on outcrop m	19-JUL-12 9:32:42AM
1528442	Kl23	6703292.22	426200.71	tv	sdmm	198	3	top of ridge striae on outcrop sampled till	19-JUL-12 10:33:03AM
	Kl24	6703484.99	426140.79	tb?	boulder		2	till mound between boulder fields	19-JUL-12 10:34:59AM
	Kl25	6703624.47	426118.94	tb?	boulder		3	boulder field sub ang-sun rounded boulders pink granite >50%	19-JUL-12 10:48:54AM
1528444	Kl26	6703806.83	426139.77	tv	sdmm		3	till ridge near conglomerate boulder	19-JUL-12 11:21:18AM
1528445	Kl27	6703508.58	425982.34	tv	sdmm		6	til trench near cobalt outcrop sampled	19-JUL-12 12:22:38PM
	Kl28	6703553.32	425753.00	tv	sdmm		2	outcrop of pink granite dyke?	19-JUL-12 12:40:18PM
	Kl29	6697485.49	428263.49	tb	SisDmm		3	ribbed moraine top frost boil	20-JUL-12 8:54:52AM
	Kl30	6697176.22	427832.63	tb	sisdmm		2	ribbed moraine top frost boil	20-JUL-12 8:56:11AM
1528447	Kl31	6697157.80	427831.69	tb	sisdmm		3	ribbed moraine top frost boil	20-JUL-12 9:21:30AM
1528446	Kl32	6697767.46	427160.90	tb	sisdmm		2	till ridge above snake showing	20-JUL-12 11:23:18AM
1528448	Kl33	6697667.00	418856.89	tb	sisdmm		2	till area high granite percentages. ? Granite nearby	20-JUL-12 2:35:19PM
	Kl34	6697656.77	418460.99	tv	sdmm	202	4	outcrop conglomerate striated roche moutonee	20-JUL-12 3:12:25PM
	Kl35	6697280.64	418328.88	tb?	sdmm		3	top od high ridge no outcrop boulders float	20-JUL-12 3:33:26PM
	Kl36	6704104.32	416109.79	gf	bgs		3	esker ridge -polymictic granites/mtased/volc	22-JUL-12 8:21:40AM
1528449	Kl37	6704582.99	415904.79	tb	sisdmm		4	ribbed moraine top angular metased bldrs, slts>90%	22-JUL-12 8:55:18AM
	Kl38	6705119.06	416166.10	tb	sisdmm		3	ribbed moraine top angular metased bldrs, slts>90%	22-JUL-12 10:27:46AM
	Kl39	6705263.80	416146.36	gf	bgs		3	kame mound on top of ribbed moraine	22-JUL-12 10:43:29AM
	Kl40	6705451.30	416442.01	tb	sisdmm		3	ribbed moraine top angular metased bldrs, slts>90%	22-JUL-12 11:09:37AM
	Kl41	6706298.53	416922.31	tb	sisdmm		3	slump boulder field	22-JUL-12 12:36:41PM
	Kl42	6706621.94	417387.90	tb	sisdmm		3	large conglomerate boulders local >3m dm strewn on rmor	22-JUL-12 1:23:02PM
1528450	Kl44	6707184.49	418084.84	tb	sisdmm		4	blocky ribbed moraine till sample near moose showing	22-JUL-12 3:03:07PM
1528465	Kl45	6689009.32	403531.26	gf	gs		2	esker ridge -polymictic granites/mtased/volc	24-JUL-12 8:42:56AM
	Kl46	6688546.40	402995.65	tb	sdmm		1	contact till glaciofluvial sediment,,or isolated mound	24-JUL-12 9:16:36AM
	Kl47	6688456.60	402661.85	gf/tb	bgs		2	till mound with veneer of glaciofluvial	24-JUL-12 9:42:51AM
	Kl48	6688415.89	402508.89	gf	gs		3	flat area (outwash?) between bogs	24-JUL-12 9:54:02AM
	Kl49	6688321.39	402284.10	tb	sisdmm		2	till mound angular metasilt boulders	24-JUL-12 10:11:37AM
	Kl50	6688337.83	402051.28	tb	sisdmm		2	till mound angular metsilt bldrs mineralized float	24-JUL-12 10:29:50AM
	Kl51	6688390.02	401998.38	tv/br	br		2	outcrop metsilt 222/48 till veneer on top of ridge	24-JUL-12 11:16:41AM
1528466	Kl52	6688450.45	401950.27	tv	sisdmm		3	broad hill bdrock controlled till sample	24-JUL-12 11:55:42AM
	Kl53	6703830.64	423854.10	tv/br	br	194	2	striae site Kiyuk camp	24-JUL-12 2:45:15PM

Appendix 2 Pilot study bulk till samples (Rusty Showing)

SampleNum	DATE_	SAMPLER	PROJECT	SAMPLETYPE	SampSubType	Elev_M	UTM_E	UTM_N	Coord_Syst	Colour	MatrixPER	Exposure	MatrixTexture	Slope	SOILHORIZON	Depth_cm	Drainage	SLOPEASPECT	CLASTSHAPE
1528401	17/07/2012 16:31	CS	Kiyuk	Bulk (10kg)	Till	325.5	425970.4735	6700002.324	UTM 14N NAD83	Brown	10-30	Dug pit	Silty Sand	Flat	B/C	50	Damp		SubAng
1528402	17/07/2012 6:31	CG	Kiyuk	Bulk (10kg)	Till	330	426179.9103	6700011.051	UTM 14N NAD83	Brown	10-30	Dug pit	Silty Sand	Gentle	C	30	Wet	Northeast	SubAng
1528403	17/07/2012 8:56	CG	Kiyuk	Bulk (10kg)	Soil	336.1	425773.4564	6700013.036	UTM 14N NAD83	Brown	10-30	Dug pit	Sand	Gentle	B/C	50	Damp	South	SubRnd
1528404	18/07/2012 15:10	VM	Kiyuk	Bulk (10kg)	Till	329	426078.8217	6699869.583	UTM 14N NAD83	Brown	10-30	Dug pit	Sandy Silt	Gentle	B/C	60	Moist	West	SubRnd
1528405	18/07/2012 17:46	CS	Kiyuk	Bulk (10kg)	Till	334.5	425829.646	6699865.945	UTM 14N NAD83	Red	30-50	Dug pit	Gravel	Gentle	B	70	Dry	East	Ang
1528406	18/07/2012 19:53	VM	Kiyuk	Bulk (10kg)	Till	324.8	425637.2592	6699870.071	UTM 14N NAD83	Brown	30-50	Dug pit	Sandy Silt	Gentle	B/C	60	Damp	South	SubAng
1528407	19/07/2012 15:38	VM	Kiyuk	Bulk (10kg)	Soil	316.1	425721.6338	6699539.694	UTM 14N NAD83	Brown	>70	Dug pit	Sand	Flat	B	60	Moist		SubAng
1528408	19/07/2012 17:34	VM	Kiyuk	Bulk (10kg)	Soil	322.3	425875.6606	6699593.545	UTM 14N NAD83	Grey	30-50	Dug pit	Silty Clay	Gentle	B/C	70	Wet	West	SubAng
1528409	19/07/2012 21:08	VM	Kiyuk	Bulk (10kg)	Soil	319.6	425466.6863	6699582.432	UTM 14N NAD83	Brown	30-50	Dug pit	Silty Sand	Gentle	B/C	70	Wet	Southwest	SubAng
1528410	19/07/2012 22:16	CS	Kiyuk	Bulk (10kg)	Till	326.1	425321.0286	6699583.2	UTM 14N NAD83	Brown	10-30	Dug pit	Silty Sand	Flat	B/C	70	Dry		SubRnd
1528411	20/07/2012 19:43	VM	Kiyuk	Bulk (10kg)	Soil	320.6	425070.8959	6699418.837	UTM 14N NAD83	Brown	10-30	Dug pit	Sandy Silt	Flat	B	80	Dry		SubAng
1528412	20/07/2012 19:46	VM	Kiyuk	Bulk (10kg)	FieldDup	320.6	425071.8058	6699418.446	UTM 14N NAD83							0			
1528413	21/07/2012 15:47	CS	Kiyuk	Bulk (10kg)	Till	310.9	424804.6613	6698948.27	UTM 14N NAD83	Grey	<10	Dug pit	Silty Sand	Gentle	C	10	Damp	North	SubRnd
1528414	21/07/2012 16:48	VM	Kiyuk	Bulk (10kg)	Till	317.1	425061.3461	6698925.504	UTM 14N NAD83	Grey	10-30	Dug pit	Sandy Silt	Gentle	C	70	Dry	East	SubAng
1528415	21/07/2012 17:29	CS	Kiyuk	Bulk (10kg)	Till	322	425309.9602	6699050.164	UTM 14N NAD83	Brown	10-30	Dug pit	Silty Sand	Gentle	C	70	Damp	North	SubRnd
1528416	21/07/2012 18:47	CS	Kiyuk	Bulk (10kg)	Till	327.8	425507.0282	6699052.796	UTM 14N NAD83	Grey	10-30	Dug pit	Sandy Silt	Gentle	C	70	Dry	East	SubAng
1528417	21/07/2012 19:21	CS	Kiyuk	Bulk (10kg)	Till	326.9	425706.7606	6699055.569	UTM 14N NAD83	Grey	10-30	Dug pit	Silt	Moderate	C	70	Damp	North	SubAng
1528418	21/07/2012 20:48	VM	Kiyuk	Bulk (10kg)	Till	335.7	426024.4498	6699057.803	UTM 14N NAD83	Grey	30-50	Dug pit	Silt	Gentle	C	70	Wet	North	SubRnd
1528451	18/07/2012 3:54	CG	Kiyuk	Bulk (10kg)	Till	324.7	425967.7907	6699722.565	UTM 14N NAD83	Brown	10-30	Dug pit	Silty Sand	Gentle	B/C	50	Moist	South	SubRnd
1528452	18/07/2012 21:44	JP	Kiyuk	Bulk (10kg)	Till	328.6	425669.6612	6699708.982	UTM 14N NAD83	Grey	10-30	Dug pit	Silty Sand	Gentle	C	40	Damp	Northeast	SubAng
1528453	19/07/2012 4:40	CG	Kiyuk	Bulk (10kg)	Till	341.4	425831.3865	6700157.421	UTM 14N NAD83	Grey	30-50	Dug pit	Silty Sand	Gentle	C	30	Wet	Northwest	SubAng
1528454	19/07/2012 7:03	CG	Kiyuk	Bulk (10kg)	Till	348.8	426011.019	6700167.676	UTM 14N NAD83	Grey	10-30	Dug pit	Silty Sand	Gentle	C	50	Damp	North	SubAng
1528455	19/07/2012 9:50	CG	Kiyuk	Bulk (10kg)	FieldDup		426007.7126	6700167.558	UTM 14N NAD83							0			
1528456	20/07/2012 3:35	CG	Kiyuk	Bulk (10kg)	Till	324.6	425363.9139	6699267.409	UTM 14N NAD83	Brown	30-50	Dug pit	Sandy Silt	Gentle	C	60	Damp	East	SubAng
1528457	20/07/2012 4:51	CG	Kiyuk	Bulk (10kg)	Till	320.5	425214.4924	6699250.991	UTM 14N NAD83	Brown	10-30	Dug pit	Sandy Silt	Gentle	C	70	Damp	Northeast	SubRnd
1528458	20/07/2012 6:58	CG	Kiyuk	Bulk (10kg)	Till	314.3	424856.3854	6699282.346	UTM 14N NAD83	Brown	30-50	Dug pit	Silty Sand	Moderate	C	60	Damp	South	SubAng
1528459	20/07/2012 20:48	VM	Kiyuk	Bulk (10kg)	Till	324.5	425079.6124	6699280.884	UTM 14N NAD83	Grey	10-30	Dug pit	Silty Sand	Gentle	C	80	Dry	South	SubAng
1528460	21/07/2012 3:54	CG	Kiyuk	Bulk (10kg)	Till	313.9	424367.7805	6698509.683	UTM 14N NAD83	Grey	10-30	Dug pit	Sandy Silt	Gentle	C	70	Damp	South	SubRnd
1528461	21/07/2012 4:50	CG	Kiyuk	Bulk (10kg)	Till	319.4	424791.5385	6698505.701	UTM 14N NAD83	Grey	30-50	Dug pit	Sandy Silt	Gentle	C	60	Damp	Northwest	SubAng
1528462	21/07/2012 5:54	CG	Kiyuk	Bulk (10kg)	Till	329.3	425194.1635	6698501.09	UTM 14N NAD83	Grey	30-50	Dug pit	Sandy Silt	Gentle	C	70	Damp	North	SubRnd
1528463	21/07/2012 7:14	CG	Kiyuk	Bulk (10kg)	Till	337.5	425593.5634	6698509.402	UTM 14N NAD83	Brown	30-50	Dug pit	Sandy Silt	Flat	C	60	Damp		SubRnd
1528464	21/07/2012 8:31	CG	Kiyuk	Bulk (10kg)	Till	334.8	425977.6754	6698497.645	UTM 14N NAD83	Grey	10-30	Dug pit	Sandy Silt	Flat	C	60	Damp		SubRnd

Appendix 3. Gold grain summary data and quality control

Total1	Uncorrected gold grain counts
Total2	Estimated ppb value in HMC's
Normt	Total normalized to 10 kg (Total 1*10/Bulk rec'd)
Ratio	Proximity ratio (Total1/Reshaped+Modified)

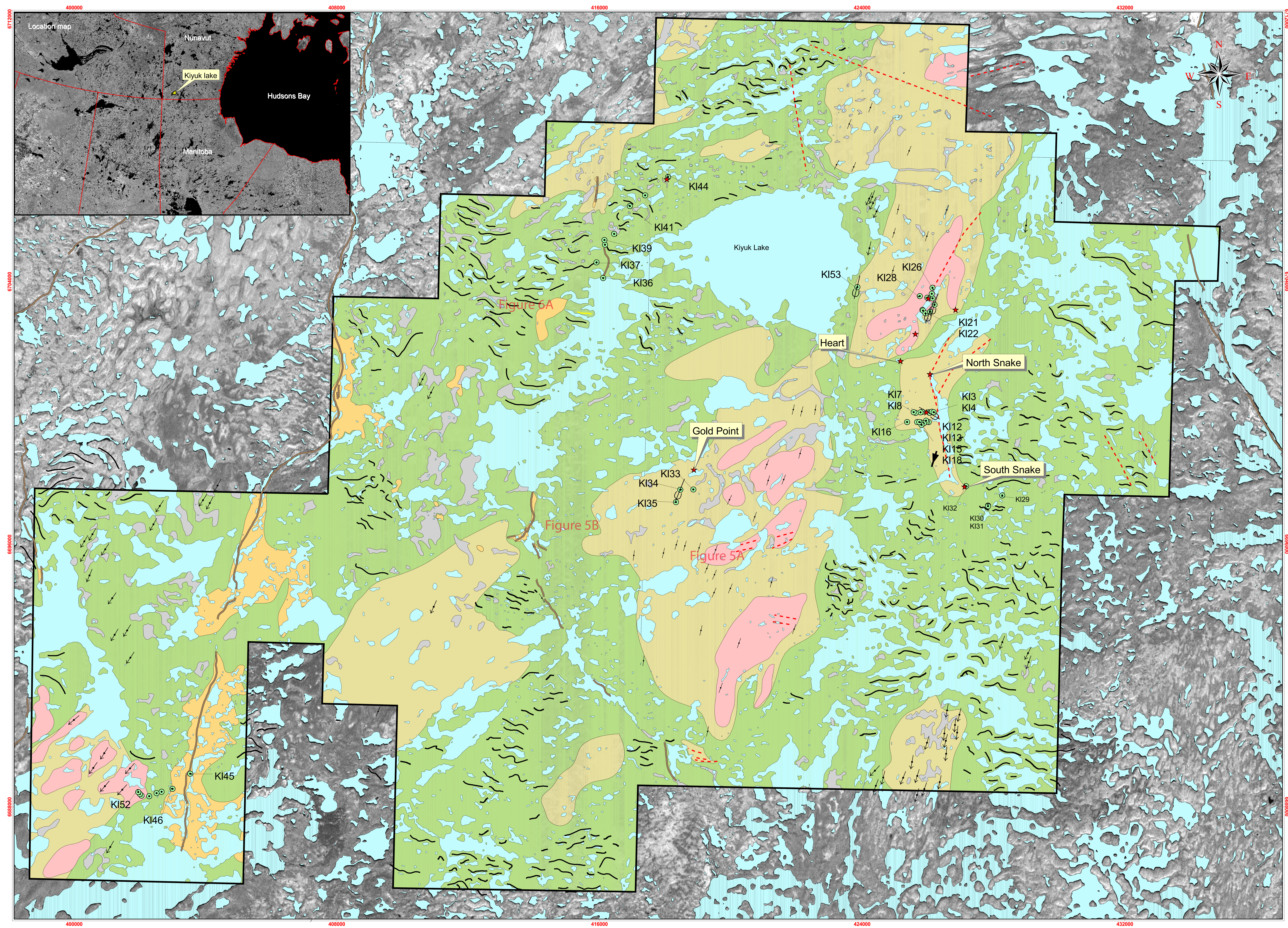
Yellow shaded samples field duplicates at the same locations.

Ideally in a larger survey every batch of twenty samples would contain a field duplicate pair and one standard (a bulk till site with known counts and low counts). In this limited survey two sites were double sampled (411-412) and (454-455). Both produced duplicate counts with acceptable variability. Background values of gold are considered to be less than 5 grains.

Complete gold grain data available as an Excel database available on request

Smpno	Northing	Easting	Total1	Reshaped	Modified	Pristine	Total2	Reshaped	Modified	Pristine	Bulk Rec'd	Table Split	+2.0 mm Clasts	Table Feed	(g)	Normtot1	Ratio
1528401	6700002.3	425970.47	1720	0	170	1550	35244	0	1754	33490	7.40	6.90	2.10	4.80	19.20	2324	10.1
1528402	6700011.1	426179.91	1	0	0	1	7	0	0	7	9.20	8.70	1.80	6.90	27.60	1	
1528403	6700015	425774.53	20	16	3	1	107	80	3	23	7.30	6.80	2.80	4.00	16.00	27	1.1
1528404	6699869.6	426078.82	12	10	1	1	117	115	<1	1	7.20	6.70	2.40	4.30	17.20	17	1.1
1528405	6699865.9	425829.65	1074	0	144	930	12976	0	3590	9386	8.20	7.70	4.40	3.30	13.20	1310	7.5
1528406	6699870.1	425637.26	45	7	24	14	370	104	243	22	6.10	5.60	1.80	3.80	15.20	74	1.5
1528407	6699539.7	425721.63	465	96	249	120	16955	3656	11611	1689	8.40	7.90	3.60	4.30	17.20	554	1.3
1528408	6699593.6	425875.66	926	6	162	758	27321	142	6783	20396	7.80	7.30	2.40	4.90	19.60	1187	5.5
1528409	6699582.4	425466.69	34	22	7	5	246	202	25	19	9.90	9.40	3.60	5.80	23.20	34	1.2
1528410	6699583.2	425321.03	14	9	4	1	111	60	41	10	7.20	6.70	1.80	4.90	19.60	19	1.1
1528411	6699418.8	425070.9	51	24	17	10	362	276	74	12	10.30	9.80	4.30	5.50	22.00	50	1.2
1528412	6699418.5	425071.81	41	6	14	21	344	229	45	70	10.50	10.00	4.10	5.90	23.60	39	2.1
1528413	6698948.3	424804.66	40	16	18	6	290	257	31	2	9.10	8.60	2.40	6.20	24.80	44	1.2
1528414	6698925.5	425061.35	23	11	4	8	463	171	39	254	8.70	8.20	3.20	5.00	20.00	26	1.5
1528415	6699050.2	425309.96	9	3	6	0	252	9	242	0	9.20	8.70	3.70	5.00	20.00	10	1.0
1528416	6699052.8	425507.03	6	1	5	0	23	1	22	0	8.70	8.20	3.40	4.80	19.20	7	1.0
1528417	6699055.6	425706.76	313	31	127	155	3559	509	1959	1092	8.30	7.80	3.00	4.80	19.20	377	2.0
1528418	6699057.8	426024.45	169	45	89	35	1347	313	857	177	8.20	7.70	2.00	5.70	22.80	206	1.3
1528441	6703114.3	425849.87	943	27	154	762	5298	290	1620	3388	10.20	9.70	4.30	5.40	21.60	925	5.2
1528442	6703292.2	426200.71	65	23	34	8	104	38	63	3	9.30	8.80	2.70	6.10	24.40	70	1.1
1528443	6703030.9	425925.84	669	14	230	425	3594	145	1984	1465	9.7	9.2	2.8	6.4	25.60	690	2.7
1528444	6703806.8	426139.77	47	7	24	16	117	36	30	51	7.2	6.7	2.4	4.3	17.20	65	1.5
1528445	6703508.6	425982.34	217	38	129	50	1295	757	451	87	8.3	7.8	2.6	5.2	20.80	261	1.3
1528446	6697767.5	427160.9	6	3	2	1	82	75	7	<1	7.5	7.0	3.0	4.0	16.00	8	1.2
1528447	6697157.8	427831.69	4	3	1	0	6	5	1	0	8.1	7.6	1.5	6.1	24.40	5	1.0
1528448	6697667	418856.89	1	0	0	1	<1	0	0	<1	7.4	6.9	1.6	5.3	21.20	1	
1528449	6704583	415904.79	9	4	2	3	21	17	3	2	8.4	7.9	3.4	4.5	18.00	11	1.5
1528450	6707184.5	418084.84	47	8	18	21	538	161	61	316	7.5	7.0	3.4	3.6	14.40	63	1.8
1528451	6699722.6	425967.79	9	3	4	2	22	17	4	2	6.4	5.9	1.7	4.2	16.80	14	1.3
1528452	6699720.7	425671.6	1	1	0	0	35	35	0	0	7.5	7.0	2.4	4.6	18.40	1	1.0
1528453	6700157.4	425831.39	41	13	16	12	126	83	25	18	10.3	9.8	2.3	7.5	30.00	40	1.4
1528454	6700167.7	426011.02	4	3	1	0	21	21	<1	0	7.7	7.2	2.5	4.7	18.80	5	1.0
1528455	6700167.6	426007.71	0	0	0	0	0	0	0	0	7.0	6.5	2.1	4.4	17.60	0	
1528456	6699267.4	425363.91	2	2	0	0	13	13	0	0	7.1	6.6	2.4	4.2	16.80	3	1.0
1528457	6699251	425214.49	2	0	0	2	28	0	0	28	8.8	8.3	2.5	5.8	23.20	2	
1528458	6699282.4	424856.39	31	12	14	5	172	76	93	2	8.1	7.6	2.6	5.0	20.00	38	1.2
1528459	6699280.9	425079.61	28	14	11	3	248	154	88	5	8.3	7.8	3.0	4.8	19.20	34	1.1
1528460	6698509.7	424367.78	16	8	7	1	107	93	14	<1	8.3	7.8	1.9	5.9	23.60	19	1.1
1528461	6698505.7	424791.54	5	4	0	1	33	14	0	19	9.8	9.3	4.5	4.8	19.20	5	1.3
1528462	6698501.1	425194.16	15	8	5	2	118	47	50	21	8.9	8.4	3.8	4.6	18.40	17	1.2
1528463	6698509.4	425593.56	4	3	1	0	7	6	1	0	9.6	9.1	3.4	5.7	22.80	4	1.0
1528464	6698497.6	425977.68	8	5	2	1	82	37	1	44	9.3	8.8	3.0	5.8	23.20	9	1.1
1528465	6689009.3	403531.26	0	0	0	0	0	0	0	0	7.7	7.2	0.4	6.8	27.20	0	
1528466	6688450.5	401950.27	2	2	0	0	96	96	0	0	7.2	6.7	2.3	4.4	17.60	3	1.0

Map 1



LEGEND

HOLOCENE NONGLACIAL ENVIRONMENT

Terrain Unit and Significance to Mineral Exploration

Organic Terrain:
(deposits of peat laid down in areas of high water table)

Areas where peat and muck are greater than 1m, constituting bogs and muskeg, low-lying floodplains (peat underlain by sand) and lake shore swamps. Significant detriment to exploration due to masking effect of thick organic material and creation of false anomalies by spurious concentration of metals.

PLEISTOCENE GLACIAL ENVIRONMENT

Glaciofluvial Deposits
(deposits of sand and gravel formed by glacier meltwater streams)

Sand and gravel deposits are found associated with sinuous ridges (eskers) and mounds (kames) Thicknesses vary widely from >10m in mounds and ridges to less than 1m and bedrock is exposed sporadically. These deposits generally consist of coarse-fine sand and gravel and bouldery, gravel deposits. Deposits are considered detrimental to prospecting for local rocks and geochemical exploration using soils because they contain englacial (far-travelled) material which effectively dilute local bedrock content.

Till Deposits
(unsorted deposits of boulders/gravel/mud deposited directly by a glacier; basal facies formed near base of glacier, ablation facies from debris higher in the ice)

Till veneer (continuous)

A thin but continuous cover of till (2-4m) with rare outcrop (<1%). Surface topography controlled by underlying bedrock. Terrain is suitable for prospecting and geochemical/geophysical surveys as local bedrock is either at surface or within 3m, covered by a locally-derived till.

Till blanket and ridged till

A thick continuous cover of till (4-20m). Surface topography controlled by glacial landforms mainly in the form of discontinuous, arcuate ridges (ribbed moraine) ranging from 3-10m in height and up to l km in length. Otherwise the surface morphology is hummocky or rolling. The terrain is suitable for prospecting and geochemical/geophysical surveys but thicker till deposits may contain far travelled debris at surface.

Bedrock and thin till
(bedrock scoured by ice and meltwater action, sediment removed)

Bedrock outcrop with a thin cover of till (1-2m). Outcrop is <10% of surface area. Outcrops moulded by ice action with striations and grooves. Terrain suitable for prospecting because bedrock is sporadically exposed and thin till/soils are locally derived.

Symbols

Drumlin: rock-cored hill streamlined by glacier erosion, arrow indicates ice flow direction.

Glacial Lineament: "megagroove" large scale erosional troughs visible on LANDSAT imagery.

Glacial Striae: linear scratches on bedrock parallel to ice flow

Esker (sand and graveL) ridge

Ribbed moraine

Structural Lineament: strike ridge/fault/contact linear feature on LANDSAT and air photographs.

Kiyuk Au zones&prospects

KI 31 Field stop location (Appendix 1)

Surficial Geology of the KIYUK LAKE PROPERTY
Prosperity Goldfields Corp

Map 1

Universal Transverse Mercator
North American Datum 1983

Scale 1:50,000

1 0 1 2 Kilometers

Stea Surficial Geology Services

Source of geological information:
Aylsworth, J. M., 1986. Surficial geology, Ennadai Lake, District of Keewatin, Northwest Territories, Geological Survey of Canada, Map 5-1995, scale, 1:125,000.