2019 TECHNICAL REPORT

PROJECT EXPLORATION AND FARADAY INFERRED MINERAL RESOURCE ESTIMATE UPDATE

KENNADY NORTH PROJECT

NORTHWEST TERRITORIES, CANADA

63° 26' 04" to 63° 33' 50" North

108° 59' 12" to 109° 23' 48" West

N.T.S. 75N/6 and 11

prepared for:

Mountain Province
DIAMONDS

report prepared by:

AURORA GEOSCIENCES

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NORTHWEST TERRITORIES, CANADA

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ABBREVIATIONS

Abbreviations	Definition	Abbreviation	Definition
OLV	olivine	CD	chrome diopside
OLVp	olivine phenocryst	MUS	muscovite
OLVm	olivine macrocryst	MB	marginal breccia
CR	country rock	Xeno	xenolith
CRX	country rock xenolith	KIMB	kimberlite
MC	magmaclast	CKt	CK transitional texture
SPN	spinel	HKt	HK transitional texture
PER	perovskite	KPKt	KPK transitional texture
CPX	clinopyroxene	TKB	tuffisitic kimberlite breccia
PHL	phlogopite	FOV	field of view
PHLp	phlogopite phenocryst	PPL	plane polarized light
CAR	carbonate	XPL	cross polarized light
GNT	garnet	PLAG	plagioclase
ILM	ilmenite	vf	very fine-grained (<1 mm)
BIO	biotite	f	fine-grained (>1-2 mm)
FEL	feldspar	m	medium-grained (>2-4 mm)
CHL	chlorite	c	coarse-grained (>4-8 mm)
SER	serpentine	f-m	fine to medium-grained
MONT	monticellite	f-m+c	fine to medium + coarse-grained
RFW	requires further work	f-c	fine to coarse-grained
f-c+vc	Fine to coarse + very coarse-grained	f-c+vc	Very fine to coarse + very coarse-grained
RVK	resedimented volcaniclastic kimberlite	Ga	billion years
KPK	Kimberley-type pyroclastic kimberlite	Ma	million years
VK	volcaniclastic kimberlite	mm	millimetre
CK	coherent kimberlite	cm	centimetre
HK	hypabyssal kimberlite	m	metre
Mm^3	million cubic metres	km	kilometre
g/cm^3	grams per cubic centimetre	l	litre
US$/ct	US dollar per carat	ct	carat
asl	above sea level	cpt	carats per tonne
Mct	million carats	Mt	million tonnes
cpht	carats per hundred tonnes	st/t	stones per tonne
SFD	size frequency distribution		

1 EXECUTIVE SUMMARY

Aurora Geosciences Ltd. (AGL) was commissioned by Mountain Province Diamonds (MPV) to prepare an updated independent, Canadian National Instrument 43-101 report, for the Kennady North Property, located in the Northwest Territories, Canada. The updated technical report will include an updated resource statement on the Faraday 2 kimberlite.

The Kennady North Property is wholly owned (100%) by MPV after a reacquisition of Kennady Diamonds Inc. (KDI). The property surrounds the Gahcho Kué mine, a joint venture between DeBeers Canada (51%) and MPV (49%).

KDI filed a maiden resource for the Kelvin kimberlite on January 23, 2017 and then filed an updated resource to include the Faraday kimberlites on November 17, 2017. The previous resource at the Kennady North property is summarized below in Table 1. Both reports are filed on Sedar (www.sedar.com) on the dates listed above under KDI, the issuer.

Table 1-1. Previous resource classification at the Kennady North Property – November 17, 2017

Resource classification	Body	Volume (Mm^3)	Density (g/cm^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mct)	Value (US $/ct)
Indicated	Kelvin	3.49	2.44	8.50	1.60	13.62	63
Inferred	Faraday 2 and Faraday 3	1.35	2.43	3.27	1.54	5.02	98

There is also a small target for further exploration (TFFE) documented for the Kennady North project. The TFFE is listed in Table 1-2.

Table 1-2. Previous Target for further exploration (TFFE) estimate for the Kennady North Property

Body	Volume (Mm^3)		Tonnes (Mt)		Grade (+1 mm cpt)	
	Low	High	Low	High	Low	High
Faraday 1	0.2	0.5	0.6	1.2	1.5	3.7
Faraday 2	0.01	0.02	0.01	0.04	-	-

This report documents the update of the Faraday 2 resource which is shown in Table 1-3.

Table 1-3. Faraday 2 Mineral Resource Update

Classification	Domain	Volume (Mm^3)	Density (t/m^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mcts)	Value (US$/ct)
Inferred	KIMB1	0.61	2.35	1.43	2.45	3.51	$149
	KIMB2	0.13	2.43	0.32	3.60	1.17	$110
	KIMB3	0.08	2.37	0.18	3.45	0.62	$144
	KIMB4	0.04	2.41	0.11	1.40	0.15	$130
	KIMB5	0.007	2.35	0.017	0.00	0.00	$0

	Internal Waste	0.005	2.75	0.014	0.00	0.00	$0
TOTALS		***0.88***	***2.37***	***2.07***	***2.63***	***5.45***	***$140***

1.1 PROPERTY DESCRIPTION, LOCATION, ACCESS and PHYSIOGRAPHY

The Kennady North property is 100% owned by MPV. The land package comprises twenty-two (22) mineral leases and fifty-eight (58) mineral claims, totaling 160,997.16 acres or 65,154.66 hectares. The property covers an area roughly 30 kilometres long and up to 30 kilometres wide. The project area is located 290 kilometres east-northeast of Yellowknife, NT and centered geographically at approximately 63°29' North latitude and 109°11' West longitude.

Yellowknife, NT, provides the closest business and commercial centre for the project. Access to the property is via a winter road, float- and/or ski-equipped aircraft year-round or via larger Dash 7 aircraft landing on an ice strip in the winter. The KDI project also has a license agreement to use the airstrip at Gahcho Kué.

The property area is part of the Barrenlands on the edge of the zone of continuous p ermafrost. The area is characterized by heath and tundra (low shrubs and alpine-type vegetation) with occasional knolls, surface outcrops and localized surface depressions, interspersed with lakes.

The Kennady North project features low to moderate relief, ranging from 400 metres to 550 metres ASL (above sea level). Elongate north-northeast trending outcrop expressions vary in height from a few metres up to 20 metres.

1.2 HISTORY

Numerous exploration programs have been completed on the Kennady North property since 1992 by multiple operators including: GGL Diamond Corp, Winspear Resources Ltd., SouthernEra Resources Ltd., Canamera Geological Ltd. and the joint venture comprising MPV. A joint venture agreement was signed with Monopros Ltd. (now De Beers Canada Exploration Inc. – DCEI), MPV and Camphor Ventures Inc. in 1997 turning over operatorship of the large ground package to DCEI.

Subsequent to forming the joint venture with DCEI, all activity on the MPV ground was either undertaken by DCEI directly, or by sub-contractors under the supervision of DCEI personnel. The commissioned writer was involved in field operations during the time DCEI was operator on the MPV property.

KDI had completed extensive programs of till sampling, ground geophysics, diamond drilling and large diameter reverse circulation drilling (LDD) since obtaining 100% ownership in 2012. The current resource classification for the Kennady North property is: i) an indicated resource of 8.5 million tonnes grading 1.6 carats per tonne for a total of 13.62 million carats at an average value of $63/carat and, ii) an inferred resource of 3.27 million tonnes grading 1.54 carats per tonne for a total of 5.02 million carats at an average value of $98 per carat.

1.3 REGIONAL and LOCAL GEOLOGICAL SETTING

The Kennady North property covers a portion of the southeastern Slave Geological Province, an Archean terrane ranging in age from 4.03 Ga to 2.55 Ga (Bleeker et al., 1999). The area consists of granodiorite intrusions, high-grade gneisses and migmatites, along with volcanic and sedimentary supracrustal rocks typical of many greenstone belts in the Slave Province.

The emplacement of kimberlite bodies in the Kennady Lake (Gahcho Kué) area occurred between 531-542 Ma +/- 2.5 to 11.0 Ma during the Cambrian Period (Heaman et al., 2003). ^{87}Rb-^{87}Sr geochronology indicates that the age of the 5034 pipe is 538.6 +/- 2.51 Ma (Heaman et al., 2003). Age dating for two samples of groundmass phlogopite (^{87}Rb-^{87}Sr geochronology) obtained from the Kelvin kimberlite has returned dates ranging between 536-551 Ma and 531-546 Ma both +/- 8 Ma (Bezzola, M. et al., 2017). These emplacement ages are coincident with the Gahcho Kué kimberlites. Erosional processes since emplacement may have been significant, removing the uppermost portions of the pipes and preserving the root zones and diatreme zones. This significant erosion has resulted in KDI documenting an unconventional morphology of a kimberlite pipe present in an inclined orientation.

The Kelvin and Faraday kimberlites have been documented to show excellent geological continuity along their length with respect to the distribution of the main pipe infills. The external morphology of the pipes is complex and variable with increasing depth. Detailed geological logging, petrographic work and diamond grade investigations have identified six individual kimberlite phases at Kelvin, five individual kimberlite phases at Faraday 2, four individual kimberlite phases (plus three very minor phases) at Faraday 3 and seven individual kimberlite phases at Faraday 1. Further petrographic work is required at the Faraday kimberlites. Volcaniclastic kimberlite, classified as Kimberley-type pyroclastic kimberlite (KPK), and lesser amounts of hypabyssal kimberlite (HK) are the two end-member textural varieties of kimberlite present. Minor amounts of texturally transitional kimberlite occur as well.

1.4 DEPOSIT TYPES and MINERALIZATION

The morphology of kimberlite pipes, globally, comprise vertical to near vertical downward tapering pipes. The morphology of the Kelvin and Faraday pipes present subhorizontal and inclined pipe-like bodies.

The Kelvin kimberlite has been delineated over 700 m in strike length and varies in thickness from 30 m at the south end, to over 70 m at the north end. The kimberlite varies in height from 60 m at the south end, up to 200 m at the north end. The Kelvin has an indicated resource of 8.5 million tonnes at a grade of 1.6 carats per tonne for a total of 13.62 million carats. The deposit is open at depth toward the north.

The Faraday 2 kimberlite comprises seven (7) kimberlite domains dominated by KPK and HK. Much like Kelvin, Faraday 2 hosts only a minor amount of texturally transitional kimberlite. Faraday 2 kimberlite has been delineated over 600 m in length and varies in thickness from 20 m to 90 m and in height from 20 m up to 60 m. The Faraday 2 kimberlite remains open to the northwest.

The Faraday 1 kimberlite was first identified in the spring of 2015 and is the smallest of the known unconventional kimberlite bodies. Faraday 1 is dominated by HK, present both as sheets and irregular intrusions with less common KPK. The proportion of marginal breccia versus other kimberlite material is also higher than that documented in the other kimberlites consistent with this being the most immature pipe discovered to date. During the 2017 drilling of Faraday 1 and 3 bodies, it was determined that Faraday 1 and Faraday 3 coalesce to form one body. Faraday 1 has been delineated over 200 m in length, varies in width between 30-60 m and in height between 10-30 m.

Faraday 3 was the last of the unconventional kimberlite bodies discovered in early 2016 at Faraday Lake. The Faraday 3 body has been delineated over 400 m, varies in width between 40-150 m and in height from 20-50 m. A significant amount of detailed geology, both macroscopic and petrographic work, has been undertaken to help establish four kimberlite domains present. The infill is dominated by KPK with lesser amounts of HK. There is also texturally transitional kimberlite between these two end members. With the discovery of Faraday 1 and 3 coalescing together to form one complex kimberlite body, these two kimberlites are now referred to as the Faraday 1-3 complex.

1.5 EXPLORATION and DRILLING

The focus of KDI's work on the property, during 2018, was to establish an inferred resource for the Faraday 2 kimberlite along its full length. Delineation drilling was required to detail the northwesterly portion of the dipping kimberlite body at 200 m below surface. A total of 8 HQ-sized drill holes totaling 2,329 m were targeted to delineate the Faraday 2 kimberlite at depth. The kimberlite intersected in this drilling was used to develop the external pipe shell and the internal geology and was subjected to a caustic fusion procedure for microdiamond analyses. The microdiamonds will be used in the current evaluation to expand the inferred resource of the Faraday 2.

The 2018 drill program also tested geophysical targets along the Faraday corridor where a sheet complex, originally discovered by De Beers, is associated with the Faraday kimberlites. Targets were selected that had similar geophysical features to the Faraday and Kelvin kimberlites. A total of sixteen (16) drill holes, comprising 2,220 m of core and intersecting 36.52 m of dominantly HK, were completed. Only two (2) of these drill holes did not intersect kimberlite, with core intercepts varying between 0.067 and 12 m. It is important to appreciate that over 25 holes were completed at Kelvin prior to recognizing the presence of an inclined kimberlite pipe dominantly infilled with KPK, now estimated to host over 8.5 million tonnes of kimberlite.

Faraday 1-3 complex was targeted with ten (10) drill holes; 6 holes testing the hypabyssal sheet complex and the undrilled area between Faraday 1 and 3 and four (4) drill holes on geotechnical targets for prefeasibility work. A total of 1,407 m of drilling was completed intersecting 154.83 m of kimberlite.

Two drill holes totaling 233 m and intersecting 9.47 m of kimberlite were completed along the Kelvin sheet, south of the Kelvin kimberlite.

All kimberlite material retrieved from the deep drilling at Faraday 2, except for representative samples, was sent to the Saskatchewan Research Council (SRC) facility in Saskatoon, SK, for micro-diamond analysis by caustic fusion.

1.6 SAMPLING METHOD, APPROACH and ANALYSIS

SRK developed the standard operating procedures (SOP) for geological data collection in support of a resource development. Aurora Geosciences Ltd. completed all field work under the supervision of Casey Hetman of SRK on behalf of KDI.

The Saskatchewan Research Council (SRC) completed the caustic fusion on the kimberlite core retrieved during the 2018 program. SRC is an ISO/IEC 17025 accredited laboratory for caustic fusion analyses.

The shipment of the core from site to SRC was under the supervision of Gary Vivian ("QP"). Mr. Vivian has visited the SRC lab on numerous occasions to verify the caustic fusion and dense media separation process.

1.7 DATA VERIFICATION

Density measurements have been acquired by evaluating drill core in Yellowknife using a SOP designed by both SRK Consulting and Aurora Geosciences Ltd. incorporating industry best practices. Verification of densities measured has been completed by ALS Labs in Vancouver, BC. There is excellent correlation between Aurora's density measurements and those acquired by the independent laboratory.

The drill hole database is scrutinized by field geologists, the site geologist, the Project Manager, the Senior Project Manager and the database manager all under the supervision of Mr. Vivian ("QP"). The drill database continues to be scrutinized by SRK Consulting as they support the geological database and the establishment of the 3-D internal and external models for the kimberlite bodies.

Microdiamond and macrodiamond results listed in the Aurora Geosciences Ltd. database have been QA/QC'd consistently over the past five years by AGL, SRK and KDI. There are no inconsistencies.

1.8 MINERAL PROCESSING and METALLURGICAL DATA COLLECTION

All microdiamond processing, including caustic fusion, chemical processing, diamond observation and weighing along with diamond description and photography are completed at the SRC facility.

1.9 UPDATE TO THE KENNADY NORTH MINERAL RESOURCE ESTIMATE ON FARADAY 2

KDI has updated the Inferred Mineral resource for the Faraday 2 kimberlite. SRK Consulting (Canada) Inc. and AGL have established a robust external pipe shell and internal geological model through detailed geological investigations of drill cores combined with diamond results. The confidence in description of the geological domains has allowed SRK to project geology and diamond grade within equivalent geological domains along the full extent of the kimberlite body.

During 2018, the northwest extension of the Faraday 2 kimberlite pipe had additional diamond drilling to provide further microdiamond analysis. KDI completed average bulk densities for each internal domain, revised size frequency distribution (SFD) and average diamond grade estimates for the internal kimberlite domains as well as a reforecast of average diamond values based upon the revised SFD and diamond pricing estimates as of February 2019.

The mineral resource update has defined a total Inferred Mineral Resource for the Faraday 2 kimberlite of 2.07 million tonnes at an average grade of 2.63 carats per tonne totaling 5.45 million carats at an average diamond value of $140 per carat (Table 1-3). The estimate encompasses the Faraday 2 body as defined by the geological model, extending from base of overburden (~390 m asl) in the south-east to depths of approximately 160 m asl (230 m below surface) in the north-west. In view of Faraday 2's proximity, comparable character and higher estimated ore values relative to Kelvin, the Faraday 2 kimberlite is inferred to have a reasonable prospect for eventual economic extraction.

Table 1-4. Updated Mineral reosurce Statement for Faraday 2 - Kennady North project – February 28, 2019

Classification	Domain	Volume (Mm^3)	Density (t/m^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mcts)	Value (US$/ct)
Inferred	KIMB1	0.61	2.35	1.43	2.45	3.51	$149
	KIMB2	0.13	2.43	0.32	3.60	1.17	$110
	KIMB3	0.08	2.37	0.18	3.45	0.62	$144
	KIMB4	0.04	2.41	0.11	1.40	0.15	$130
	KIMB5	0.007	2.35	0.017	0.00	0.00	$0
	Internal Waste	0.005	2.75	0.014	0.00	0.00	$0
TOTALS		***0.88***	***2.37***	***2.07***	***2.63***	***5.45***	***$140***

Notes:

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect accuracy of the estimate.
2. Mineral resources are quoted above a +1.0 mm bottom cut-off and have been factored to account for diamond losses within the smaller sieve classes expected within a commercial process plant.
3. Inferred mineral resources are estimated on the basis of limited geological evidence and sampling, sufficient to imply but not verify geological grade and continuity. They have a lower level of confidence than that applied to an Indicated mineral resource and cannot be directly converted into a mineral reserve.
4. Average diamond value estimates are based on an updated valuation model provided by WWW International Diamond Consultants Ltd in February 2019.
5. Mineral resources have been estimated with no allowance for mining dilution and mining recovery.
6. Reasonable prospects for economic extraction have been assessed for both open pit and underground mining at a conceptual level and form the basis for mineral resource estimation. A combination of open pit and underground mining methods has been assumed for Faraday 2. Open pit and underground mining operating costs of CDN$84 and CDN$152 per tonne of ore feed, respectively, have been assumed in the analysis. A foreign exchange rate of 1.30 CDN$:US$ was used for this conceptual mining analysis.

With the update to the Faraday 2 mineral resource estimate, the current mineral resource statement for the Kennady North Property is documented in Table 1-5.

Table 1-5. Mineral resource Statement for the Kennady North Property – March 18, 2019

Resource Classification	Body	Volume (Mm^3)	Density (gm/cm^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mct)	Value (US $/ct)
Indicated	Kelvin	3.49	2.44	8.50	1.60	13.62	63
Inferred	Faraday 2	0.88	2.37	2.07	2.63	5.45	140
Inferred	Faraday 3 Lobe	0.76	2.47	1.87	1.04	1.90	75

Notes:

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect accuracy of the estimate.
2. Mineral resources are quoted above a +1.0 mm bottom cut-off and have been factored to account for diamond losses within the smaller sieve classes expected within a commercial process plant.
3. Indicated mineral resources are estimated, based upon quantity, grade or quality, densities, shape and physical characteristics, with sufficient confidence and detail to support mine planning and evaluation of the economic viability of the deposit. Indicated resource classification was provided November 17, 2017 (Vivian and Nowicki).
4. Average diamond value estimates for Kelvin and Faraday 3 are based upon a valuation model provided by WWW International Diamond Consultants Ltd in July 2017.
5. Inferred mineral resources are estimated on the basis of limited geological evidence and sampling, sufficient to imply but not verify geological grade and continuity. They have a lower level of confidence than that applied to an Indicated mineral resource and cannot be directly converted into a mineral reserve. The Faraday 2 resource classification is of February 28, 2019.
6. Reasonable prospects for economic extraction have been assessed for both open pit and underground mining at a conceptual level and form the basis for mineral resource estimation. A combination of open pit and underground mining methods has been assumed for Faraday 2. Open pit and underground mining operating costs of CDN$84 and CDN$152 per tonne of ore feed, respectively, have been assumed in the analysis. A foreign exchange rate of 1.30 CDN$:US$ was used for this conceptual mining analysis.
7. Average diamond value estimates for the Faraday 2 update are based on an updated valuation model provided by WWW International Diamond Consultants Ltd in February 2019.
8. Mineral resources have been estimated with no allowance for mining dilution and mining recovery.

2 INTRODUCTION

The Kennady North project is 100% owned by Kennady Diamonds Inc. (KDI), a wholly-owned subsidiary of Mountain Province Diamonds (MPV) and is located 290 km east-northeast of the City of Yellowknife, NT.

KDI commissioned Aurora Geosciences Ltd. (AGL) to provide an update to the technical report submitted on November 17, 2017 titled; “2017 Technical Report - Project Exploration Update and Faraday Inferred Mineral Resource Estimate, Kennady Lake North – Northwest Territories, Canada”. This update will include exploration work completed since the last public filing in November of 2017 and an updated inferred mineral resource estimate for Faraday 2. Although all aspects of this report have been under the supervision of AGL, SRK Consulting has contributed significantly in providing oversite of the geological development activities and the updated inferred resource of Faraday 2. This report will be filed by MPV in accordance with applicable securities commissions following the guidelines of the Canadian Securities Administrators National Instrument 43-101 and Form 43-101F1, and in conformity with the generally accepted Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines".

The information contained in this report was collected by AGL for KDI. All information has been reviewed by third parties such as SRK Consulting and Dr. Tom McCandless (Vice President of Exploration for MPV). Detailed geological modeling and descriptions have been under the supervision of Casey Hetman, M.Sc., P.Geo. (SRK) but completed by the Aurora team. Mr. Hetman has been to the Kennady North property on numerous occasions over the past six years. The mineral resource estimate has been completed by SRK Consulting (Canada) Inc. under the supervision of Cliff Revering, P.Eng.

This report is prepared by Gary Vivian M.Sc., P.Geol., a principal of Aurora Geosciences Ltd. of Yellowknife, NT, Mr. Cliff Revering and Mr. Casey Hetman of SRK Consulting of Vancouver, BC. Dr. Tom Nowicki, P.Geo., Technical Director of Mineral Services Canada, Vancouver, BC was a coauthor of the previous two technical reports. The work in this report on the resource update has been supplemented by Dr. Nowicki's work.

Mr. Vivian, Mr. Revering and Mr. Hetman are Qualified Persons (QPs) as defined by the Canadian Securities Administrators National Instrument 43-101.

3 RELIANCE ON OTHER EXPERTS

3.1 SOURCES OF INFORMATION AND DISCLOSURE

This report is based upon all information which has been gathered by Aurora Geosciences Ltd. (AGL) as the exploration management prime contractor to KDI. AGL has relied on some experienced subcontractors to help with field programs, but all under the standard operating procedures administered by AGL. Internal reports written for KDI and public releases used for the purposes of information in this submission have all been referenced correctly.

Diamond valuation and value distribution modelling results have been incorporated as provided by WWW International Diamond Consultants Ltd. (WWW) and are used in Section 14.1.6. in the modelling of average diamond values for Faraday 2. WWW are recognized international leaders in the field of diamond valuation and the QP's for this report believe it is reasonable to rely on the diamond values and value distribution models provided.

4 PROPERTY DESCRIPTION AND LOCATION

The Kennady North property is located in Canada's Northwest Territories, approximately 290 kilometres east-northeast of Yellowknife, NT (Figure 4-1) and geographically centered at 63°29' North latitude and 109°11' West longitude. The property is comprised of 22 mining leases and 58 mineral claims, totaling 160,997.16 acres or 65,154.66 hectares (Table 4-1 and Figure 4-2). The claims cover an area roughly 30 kilometres long by 30 kilometres wide and are located on NTS map sheets 75N/06 and 75N/11. Table 4.1

summarizes the mineral claim and mining lease details current as of April 24, 2019. The property is 100% owned by Kennady Diamonds Inc., now a private company, and a wholly-owned subsidiary of Mountain Province Diamonds Inc. MPV re-acquired KDI in April of 2018, through a total share transaction (MPV News Release April 13, 2018; "Mountain Province completes business combination with Kennady".)

The Kennady North property is part of a once larger group of original claims known as the AK property. The AK Property was staked by Inukshuk Capital Corp. in 1992, comprising 520,000 ha, and optioned to Mountain Province Mining Inc. later that same year. Only nine (9) mining leases remain of this original claim group.

Glenmore Highlands was a controlling shareholder of Mountain Province Mining Inc. as defined under the Securities Act of British Columbia. 444965 BC Ltd. amalgamated with Mountain Province Mining Inc. in 1997, to form Mountain Province Diamonds Inc. (MPV), and Camphor Ventures' interest in the property was acquired by MPV in 2007.

During 2013, KDI completed an agreement with GGL Resources Corp. to buy their Bob Lake camp and acquire 12 mineral leases. A total of 52 mineral claims were added in late 2013. Two of these claims have been allowed to lapse. KDI then completed an agreement in 2016 to purchase 6 leases along the southern boundary of the GK mine site from GGL Resources Corp. The current land package comprises 22 mining leases and 58 mineral claims.

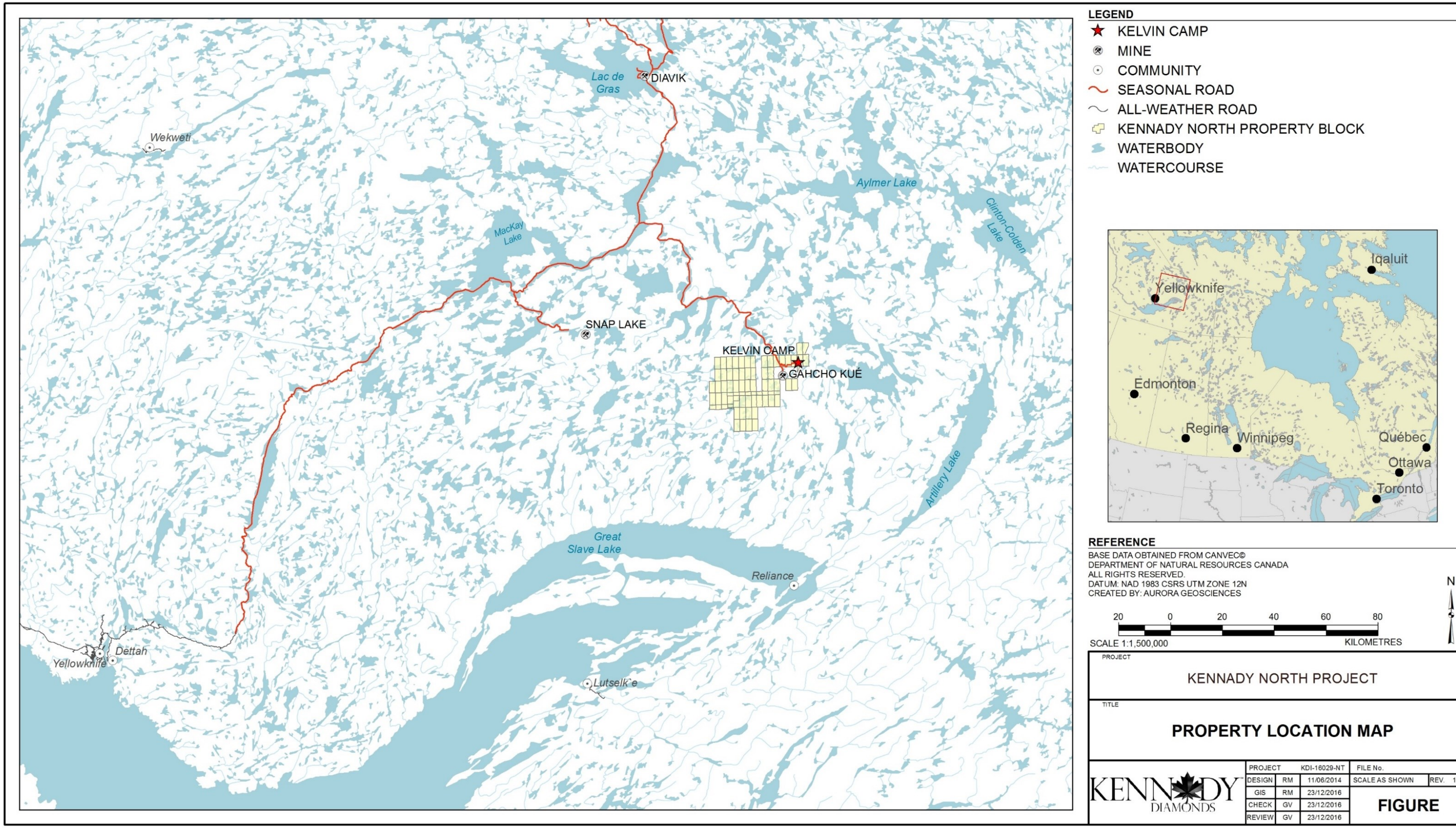

Figure 4-1. Location Map of the Kennady North project

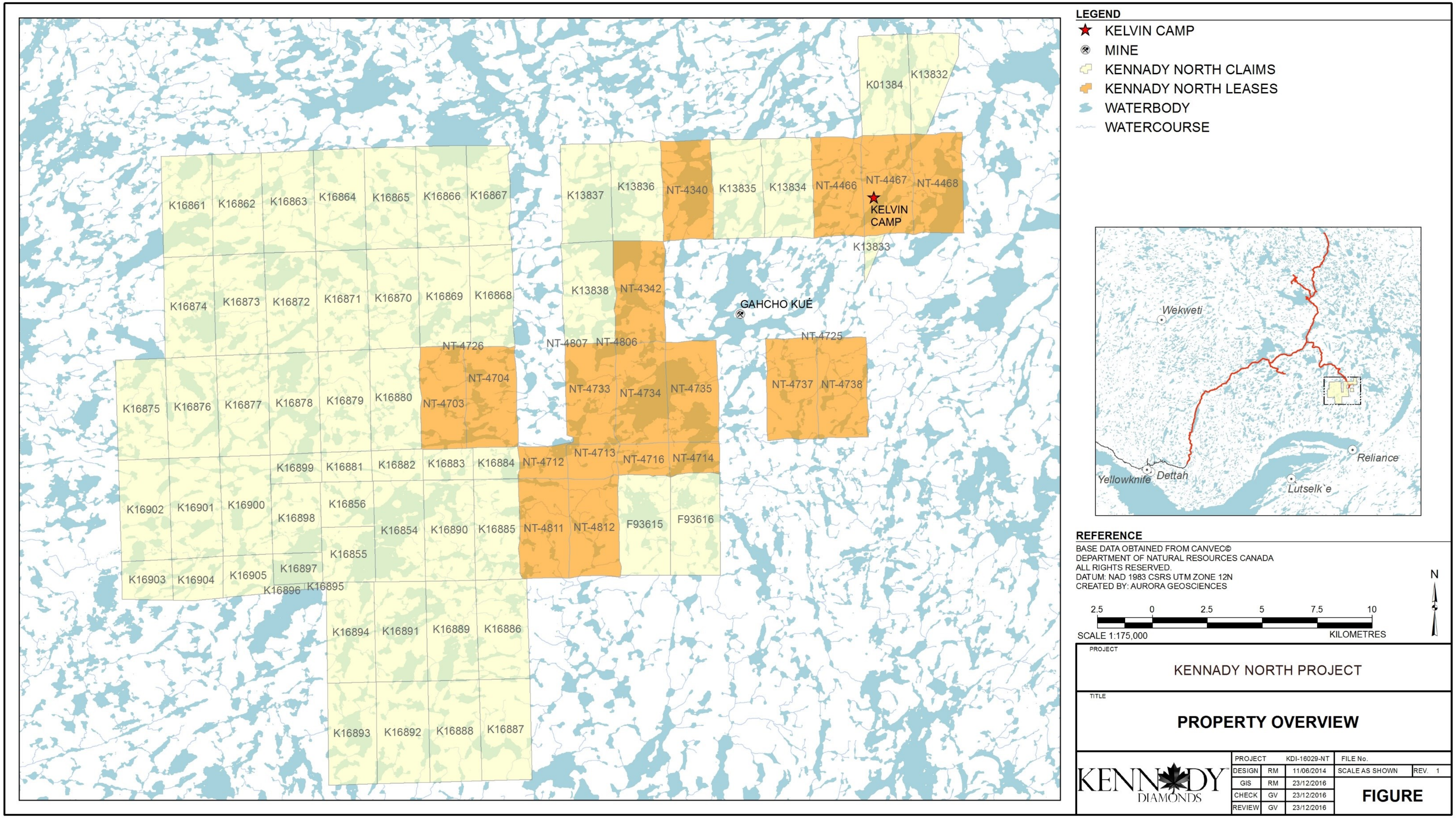

Figure 4-2. Claim location map of the Kennady North Property

Table 4-1. Mineral claim statistics for the Kennady North property

Claim Number	Name	Status	District	Lapse Date	Recording Date	Hectares	Owner
F93615	SOK 1	ACTIVE	NWT	06/06/2021	06/06/2013	1045.1	KDI 100%
F93616	SOK 2	ACTIVE	NWT	06/06/2021	06/06/2013	1045.1	KDI 100%
K16861	AL 1	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16862	AL 2	ACTIVE	NWT	13/09/2023	13/09/2013	1045.1	KDI 100%
K16863	AL 3	ACTIVE	NWT	13/09/2023	13/09/2013	1045.1	KDI 100%
K16864	AL 4	ACTIVE	NWT	13/09/2023	13/09/2013	1045.1	KDI 100%
K16865	AL 5	ACTIVE	NWT	13/09/2023	13/09/2013	1045.1	KDI 100%
K16866	AL 6	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16867	AL 7	ACTIVE	NWT	13/09/2020	13/09/2013	864.53	KDI 100%
K16868	AL 8	ACTIVE	NWT	13/09/2021	13/09/2013	909.94	KDI 100%
K16869	AL 9	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16870	AL 10	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16871	AL 11	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16872	AL 12	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16873	AL 13	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16874	AL 14	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16875	AL 15	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16876	AL 16	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16877	AL 17	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16878	AL 18	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16879	AL 19	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16880	AL 20	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16881	AL 21	ACTIVE	NWT	13/09/2021	13/09/2013	321.04	KDI 100%
K16882	AL 22	ACTIVE	NWT	13/09/2021	13/09/2013	325.37	KDI 100%
K16883	AL 23	ACTIVE*	NWT	13/09/2022	13/09/2013	323.75	KDI 100%

K16884	AL 24	ACTIVE*	NWT	13/09/2022	13/09/2013	290.81	KDI 100%
K16885	AL 25	ACTIVE	NWT	13/09/2021	13/09/2013	925.35	KDI 100%
K16886	AL 26	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16887	AL 27	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16888	AL 28	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16889	AL 29	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16890	AL 30	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16891	AL 31	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16892	AL 32	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16893	AL 33	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16894	AL 34	ACTIVE	NWT	13/09/2019	13/09/2013	1045.1	KDI 100%
K16895	AL 35	ACTIVE	NWT	13/09/2021	13/09/2013	31.57	KDI 100%
K16896	AL 36	ACTIVE	NWT	13/09/2021	13/09/2013	36.95	KDI 100%
K16897	AL 37	ACTIVE	NWT	13/09/2021	13/09/2013	306.35	KDI 100%
K16898	AL 38	ACTIVE	NWT	13/09/2021	13/09/2013	702.82	KDI 100%
K16899	AL 39	ACTIVE	NWT	13/09/2021	13/09/2013	311.69	KDI 100%
K16900	AL 40	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16901	AL 41	ACTIVE	NWT	13/09/2020	13/09/2013	1045.1	KDI 100%
K16902	AL 42	ACTIVE	NWT	13/09/2021	13/09/2013	1045.1	KDI 100%
K16903	AL 43	ACTIVE	NWT	13/09/2021	13/09/2013	409.34	KDI 100%
K16904	AL 44	ACTIVE	NWT	13/09/2021	13/09/2013	435.97	KDI 100%
K16905	AL 45	ACTIVE	NWT	13/09/2019	13/09/2013	411.32	KDI 100%
K16854	AL 46	ACTIVE	NWT	17/02/2021	17/02/2014	1045.1	KDI 100%
K16855	AL 47	ACTIVE	NWT	17/02/2021	17/02/2014	605.49	KDI 100%
K16856	AL 48	ACTIVE	NWT	17/02/2021	17/02/2014	495.42	KDI 100%
K01384	KWEZI 01	ACTIVE	NWT	22/11/2020	22/11/2010	1045.1	KDI 100%
K13832	KWEZI 02	ACTIVE	NWT	12/07/2020	12/07/2010	765.06	KDI 100%
K13833	KWEZI 03	ACTIVE	NWT	12/07/2020	12/07/2010	94.50	KDI 100%

K13834	KWEZI 04	ACTIVE	NWT	12/07/2020	12/07/2010	1045.1	KDI 100%
K13835	KWEZI 05	ACTIVE	NWT	12/07/2020	12/07/2010	1045.1	KDI 100%
K13836	KWEZI 06	ACTIVE	NWT	12/07/2020	12/07/2010	1045.1	KDI 100%
K13837	KWEZI 07	ACTIVE	NWT	12/07/2020	12/07/2010	1045.1	KDI 100%
K13838	KWEZI 08	ACTIVE	NWT	12/07/2020	12/07/2010	1045.1	KDI 100%

Table 4.2 Mineral Lease Statistics for the Kennady North property

Lease Number	Status	District	NTS Sheet	Recording Date	Hectares	Owner
4703	ACTIVE	NWT	75N/5,6	22/12/2025	954	KDI 100%
4704	ACTIVE	NWT	75N/6	22/12/2025	1064	KDI 100%
4712	ACTIVE	NWT	75N/6	22/12/2025	327	KDI 100%
4713	ACTIVE	NWT	75N/6	22/12/2025	360	KDI 100%
4714	ACTIVE	NWT	75N/6	22/12/2025	329	KDI 100%
4716	ACTIVE	NWT	75N/6	22/12/2025	337	KDI 100%
4725	ACTIVE	NWT	75N/6	22/12/2025	7.65	KDI 100%
4726	ACTIVE	NWT	75N/6	22/12/2025	6.55	KDI 100%
4733	ACTIVE	NWT	75N/6	30/03/2026	1035	KDI 100%
4806	ACTIVE	NWT	75N/6	13/02/2028	1.86	KDI 100%
4807	ACTIVE	NWT	75N/6	13/02/2028	0.945	KDI 100%
4811	ACTIVE	NWT	75N/6	21/02/2027	1027	KDI 100%
4812	ACTIVE	NWT	75N/6	21/02/2027	1004	KDI 100%
4340	ACTIVE	NWT	75N/6,11	15/07/2023	1024	KDI 100%
4342	ACTIVE	NWT	75N/6	15/07/2023	1056	KDI 100%
4466	ACTIVE	NWT	75N/6,11	15/07/2023	1017	KDI 100%
4467	ACTIVE	NWT	75N/6,11	15/07/2023	1030	KDI 100%
4468	ACTIVE	NWT	75N/6,11	15/07/2023	1034	KDI 100%
4734	ACTIVE	NWT	75N/6	30/02/2026	1069	KDI 100%

4735	ACTIVE	NWT	75N/6	30/02/2026	1066	KDI 100%
4737	ACTIVE	NWT	75N/6	30/02/2026	1059	KDI 100%
4738	ACTIVE	NWT	75N/6	30/02/2026	1029	KDI 100%
					15838.01	

To the east of, and bordering on, some of the claims and leases, Parks Canada and the Łutsel K'e Dene First Nation have withdrawn lands for the proposed Thaidene Nënė National Park Reserve. No staking or mineral exploration is currently allowed in this area although there is a suggestion the reserve boundaries could be moved and finalized by April 1, 2019. To the west, is the very large interim land withdrawal of the Akaitcho First Nations. Land claims negotiations with the Canadian Federal government have stalled, and as such this withdrawal represents one of the largest land packages removed from industry access in history. The Government of the Northwest Territories is trying to move this file ahead.

There are no environmental liabilities associated with the Kennady North property and there is a fully accessible Class 'A' land use permit and Class 'B' water license covering this project. KDI received a new land use permit and water license to accommodate an advanced stage exploration program in 2017.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 ACCESS, INFRASTRUCTURE and LOCAL RESOURCES

The Kennady North project is located in the Northwest Territories approximately 290 kilometres east-northeast of Yellowknife, 80 kilometres east-southeast of the Snap Lake Mine and 100 kilometres north of the community of Łutsel K'e. The property is 25 km north of the tree line, with no permanent road access. Centered geographically at 63°29' North latitude and 109°11' West longitude, the property covers an area roughly 30 km long and up to 30 km wide.

Access to the property is easiest via ski- and/or float-equipped fixed wing aircraft and helicopters. The Gahcho Kué Mine site, just seven kilometres to the south, has a 120 kilometre-long winter spur road, leading north to join the Tibbitt to Contwoyto Winter Road (TCWR) at MacKay Lake. KDI has an agreement in place with the Gahco Kué (GK) joint venture (DeBeers Canada and MPV) to use the spur road to access the Kennady North property. Annually, KDI builds a 10 km spur road from the Kelvin camp to access the GK spur road (Figure 5-1).

The Tibbitt-Contwoyto Lake Winter Road operates from late January to the beginning of April in most years to resupply the Ekati, Diavik, Gahco Kué and recently closed Snap Lake diamond mines. It connects with the Ingraham Trail (NWT Highway 4), a paved highway that runs for approximately 70 kilometres east of Yellowknife. Transportation within the Kennady North property is by helicopter, small ski- or float-equipped fixed wing aircraft, boats, snowmachines or on foot. KDI builds an ice strip every year to allow larger aircraft (Dash 7) to access the site. KDI also has an agreement with the GK joint venture to use the permanent airstrip at the Gahcho Kué mine site to allow larger aircraft such as an Electra or C-130 Hercules to move cargo as needed. Access encumbrances to the property are not considered significant.

The Akaitcho Interim Land Withdrawal (Figure 5-1) was instituted to put a halt to exploration in order to provide time for culminating the final Akaitcho Territory Land Claim. This agreement in principle has still not been finalized which creates uncertainty for exploration in the NWT. Figure 5-1 also shows the lands held under an interim withdrawal for the proposed Thaidene Nënė National Park Reserve abutting up against the GK mine site and the Kennady North property on the west. It is proposed that some of the proposed reserve would be turned over to the Government of the NWT to operate as territorial lands. It is unclear how all of this will look on a final map, but parties have been working towards a final plan since April 1, 2014. The park and the interim withdrawal do not directly affect the Kennady North project but could certainly have a negative impact on a perception of access.

Two camps exist on the Kennady North project, Kelvin and Bob, and provide all room and board at site. The newly amended land use permit will allow for 150 people at site with significant on-site equipment such as loaders, graders, trucks, etc.

Yellowknife is the largest supply centre in the area. This small city (pop. 19,000) has many amenities. It is serviced by four airlines with daily flights connecting to the south. A paved highway also extends from Yellowknife south to Alberta. All logistical support, labour and professional staff can be supplied from Yellowknife, NT.

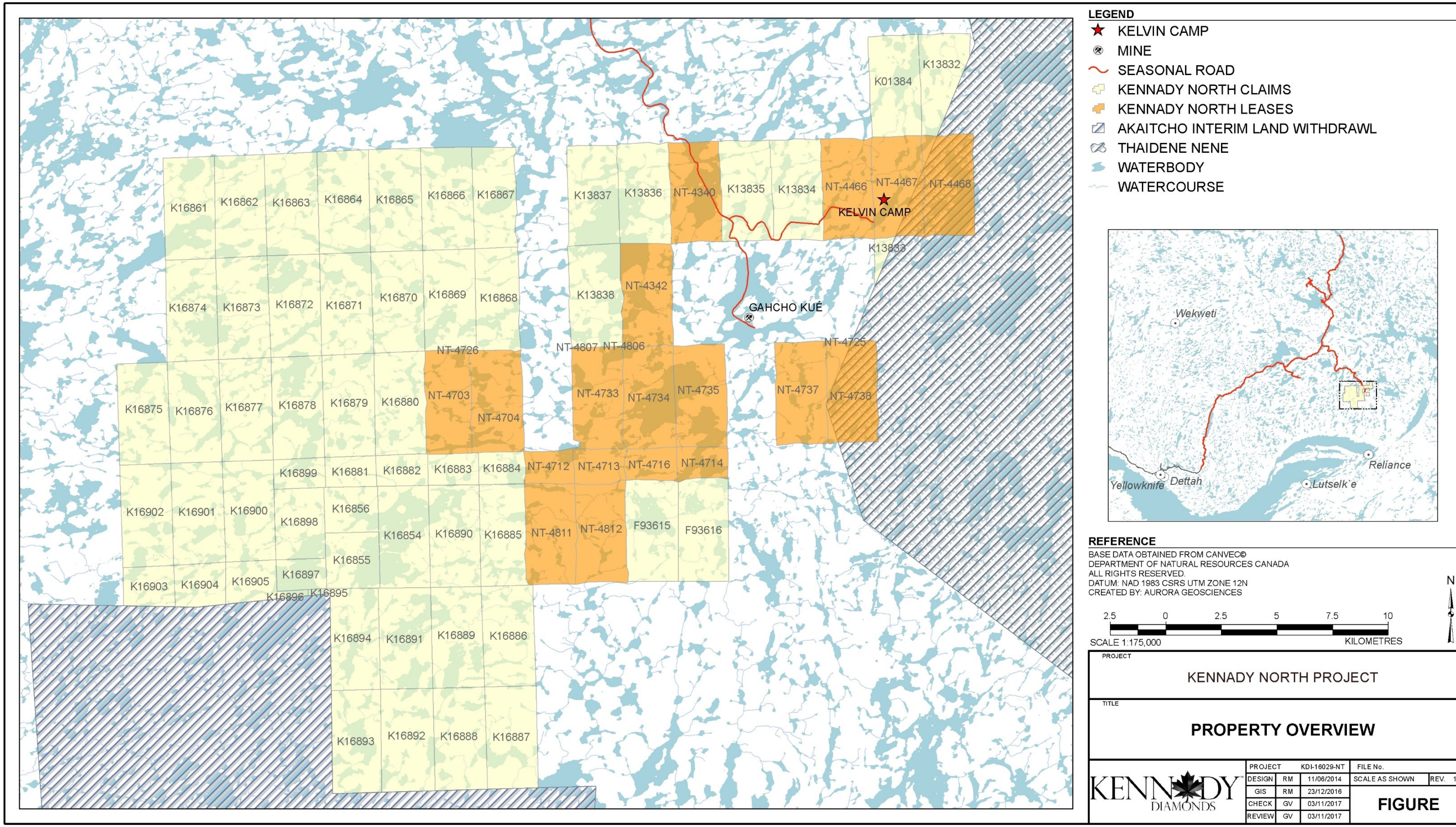

Figure 5-1. Location map showing Winter Road Access to the Kennady North project

5.2 CLIMATE

The Kennady North project is located 225 kilometres south of the Arctic Circle and experiences an extreme and semi-arid polar climate typical of the Taiga Shield Ecozone of Canada (Ecological Stratification Working Group, 1995). The area can further be classified as belonging to the Taiga Shield High Subarctic (HS) Ecoregion (*ibid*.). The area is dominated by long and cold winters with cool, nice summers. The Northwest Territories are classified as a polar semi-desert with limited precipitation, both in the winter as snow and summer as rain.

Winter temperatures average -25°C to -30°C but extreme temperatures due to wind chill, dropping below -50°C, are not uncommon. Freeze-up usually occurs around the first week of October and break-up is usually finished by mid-June. Summers are commonly cool and short, with average temperatures around +15°C but can reach +30°C for short durations. Exploration has occurred all 12 months of the year, but the most feasible times (daylight hours, temperatures, etc.) extend from early March to late October.

Daylight hours range from 4-5 during the Winter Solstice to effectively 24 hours at the Summer Solstice. The spring and fall (vernal and autumnal) equinoxes occur in March and September, respectively, at which time the daylight hours equal night time hours.

5.3 TOPOGRAPHY and PHYSIOGRAPHY

The KDI property is part of the Barrenlands on the edge of the zone of Continuous Permafrost. The area is characterized by heath and tundra (low shrubs and alpine-type vegetation) with occasional knolls, surface outcrops and localized surface depressions, interspersed with lakes. Thin, discontinuous cover of mineral soil, organic materials and glacial drift overlie shallowly buried bedrock.

The area is characterized by low to moderate relief, ranging from 400 metres to 550 metres ASL (above sea level). Elongate north-northeast trending outcrop expressions vary in height from a few metres up to 20 metres. Local topographical relief can be up to 40-50 metres and as such, one can usually see tens of kilometres in any direction. Outcrops are separated by numerous small ponds, lakes and marshy depressions. In some places, overburden is very extensive and there may be as little as 5% outcrop in an area, but this can vary widely across the property.

5.4 FLORA and FAUNA

The local habitat represents the transition from sub-Arctic taiga coniferous forest to treeless tundra. Year-round fauna include: red fox, Arctic fox, Arctic ground squirrel (sik-sik), Barrens grizzly, wolf, wolverine and ptarmigan. Migratory species include Barrenlands caribou and many species of birds. During the summer months (mid-June to mid-August), heavy concentrations of biting flies (mosquito and blackfly) are present (NWT Department of Environment & Natural Resources web site).

Vegetation in the area is characteristic of Arctic tundra, with moss, sedges, lichens and dwarf species of willow and birch. Some small stands of stunted spruce occur in the areas near streams and rivers and can be found as far north as Kirk Lake (Ecological Stratification Working Group, 1995). The trees may reach up to two metres in height under ideal conditions of slope, drainage and insolation.

6 HISTORY

The history of the Kennady North Property area prior to 2012 has been summarized in the Technical Report submitted in July of 2012 (Sedar-Mountain Province Diamonds; Vivian, 2012). The work program from 2012-October of 2016 was compiled in the Technical Report submitted on January of 2017 (Sedar – Kennady Diamonds Inc.; Vivian, January 2017) and includes a maiden indicated resource for the Kelvin kimberlite of 8.5 million tonnes containing 13.62 million carats. There was an exploration update and an inferred resource estimate for the Faraday kimberlites compiled in a Technical Report submitted on November 17, 2017 (Sedar – Kennady Diamonds Inc.; Vivian and Nowicki, November 2017) and includes an inferred mineral resource for Faraday 2 and 3 kimberlites comprising 5.02 million carats.

KDI has completed extensive ground exploration work on the Kennady North project since mid-2011. Table 6-1 summarizes this work. A detailed description of the historical work can be ascertained from the technical reports described above.

Table 6-1. Exploration Summary on the Kennady North Property to December 31, 2018

SURVEY	2011	2012	2013	2014	2015	2016	2017	Totals
Airborne gravity line kms	3860							3860
Ground Gravity (stations)			33980	6434	4424	20346	12160	77344
OhmMapper (kms)			1757	881	206	129	402	3375
Ground Mag (kms)		610	763			751	451	2575
HLEM (kms)			256					256
Bathymetry (lakes)		23	79	33			12	147
Ground Penetrating Radar (kms)			258					258
Diamond Drilling NQ (metres)		2488	8648	16620	16896	14408		59060
Diamond Drilling HQ3 (metres)						380		380
Diamond Drilling HQ (metres)				10637	16528	5471	2764	35400
Bulk Sampling RC (tonnes)					443.8	641.8	579.22	1664.82
Till Sampling RC (samples)				899				899

The Mineral Resource for the Kennady North project from November of 2017 is listed in Table 6.2 below.

Table 6-2. Mineral resource for the Kennady North Project – November 17, 2017

Resource classification	Body	Volume (Mm^3)	Density (g/cm^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mct)	Value (US $/ct)
Indicated	Kelvin	3.49	2.44	8.50	1.60	13.62	63
Inferred	Faraday 2 and Faraday 3	1.35	2.43	3.27	1.54	5.02	98

7 GEOLOGICAL SETTING and MINERALIZATION

This section has been modified from Johnson, D. et al., 2010; Stubley, M., 2015; Bezzola, M. and Hetman, C., 2016; Nelson, L. and Hetman, C., 2017 and Nelson, L., 2018 along with numerous other internal reports specifically referenced.

7.1 SLAVE CRATON OVERVIEW

This overview of the Slave craton is an excerpt from Stubley, 2015. The Slave craton is a well-exposed small to medium-sized Archean craton that straddles the Northwest Territories – Nunavut border in northwestern Canada. Figure 7-1 is a simplified version of the geology of the Slave craton (Stubley 2015; modified from Stubley, 2005, with principal terrane boundaries outlining the surface extent of the Central Slave Superterranne (red dashed lines) from Helmstaedt and Perhsson, 2012). The craton dips below Proterozoic rocks to the east and west, and below Paleozoic cover to the north and southwest. The northwest-striking Bathurst Fault coincides with a broad zone of Proterozoic supracrustal rocks and separates the Bathurst Block in the northeast from the main Slave craton.

Recent reviews of the Slave craton by Bleeker and Hall (2007), Helmstaedt (2009), and Helmstaedt and Pehrsson (2012) address many aspects of the crustal geology and its mineral deposits. The fundamental architecture of the craton is a Mesoarchean nucleus, termed the Central Slave Basement Complex or Superterrane (CSBC or CSST, respectively), with juvenile Neoarchean crust accreted to its east and southwest margins. Timing of the principal accretion is commonly assumed to be ca. 2650 – 2630 Ma, although Bennett et al. (2005) suggest that at least some of the cratonic amalgamation occurred during the principal pan-Slave D2 tectonic event at ca. 2.6 Ga. The D2 event is associated with extensive shortening/thickening of the crust, widespread granitoid emplacement, and the peak of regional metamorphism.

7.2 REGIONAL GEOLOGY

The crust of the Slave is believed to have amalgamated during a 2.69 Ga collision event between analogous island-arc terranes (Hackett River) to the east, and a basement complex (Central Slave Basement Complex), along a N-S suture (Bleeker *et al*., 1999). Rocks of the Acasta Gneiss in the CSBC are the oldest recorded *in situ* on Earth (Bowring *et al*., 1989).

The Slave craton has been intruded by a number of mafic dyke swarms. The earliest intrusions have been ascribed an Early Proterozoic age and typically consist of diabase dykes. These constitute the Malley (2.23 Ga), MacKay (2.21 Ga) and Lac de Gras (2.03 Ga) swarms (LeCheminant *et al*., 1996). These dyke swarms are limited in extent and are postulated to indicate evidence for continental breakup during the Early Proterozoic (Fahrig, 1987).

The Mackenzie Dyke Swarm intrudes the entire Slave craton along a NW trend and is thought to be contemporaneous with flood basalt eruptions of the Coppermine River Group and associated with the Muskox Intrusive Complex. This dyke swarm has been assigned a Proterozoic age of 1270 Ma (LeCheminant and Heaman, 1989).

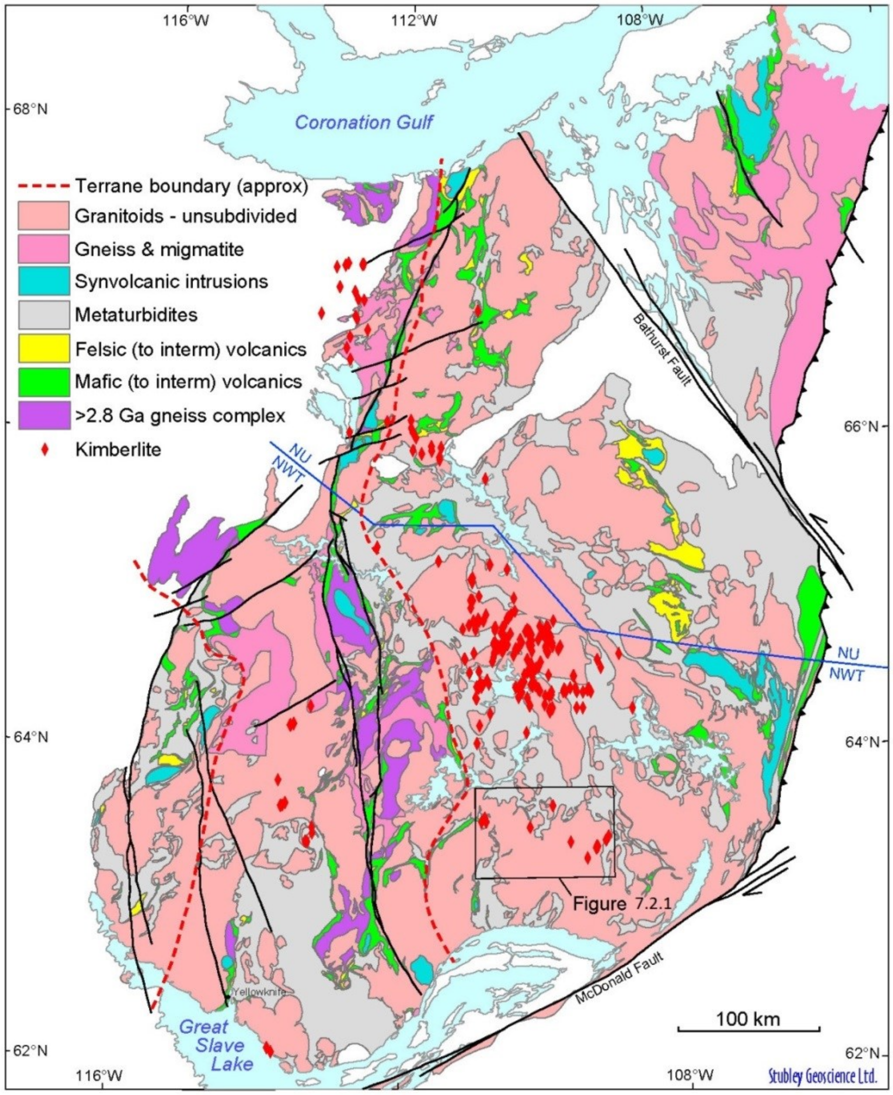

Figure 7-1. Geology Map of the Slave craton (after Stubley, 2005; Helmstaedt and Pehrsson, 2012)

Finally, the Late Proterozoic Gunbarrel and Franklin dyke swarms intrude portions of the Slave. The Gunbarrel event has analogues in the Wyoming Craton and may signal the formation of a western rift margin in North America approximately 780 Ma, as they extend from the western Slave, through the Mackenzie Mountains and into the Wyoming Craton (LeCheminant and Heaman, 1994). The gabbroic Franklin dykes and sills of 723 Ma are related to the eruption of the Natkusiak flood basalts on Victoria Island above a hot mantle plume (Rainbird, 1993).

The Kennady North property lies in the southeastern portion of the Slave craton (Figure 7-1). The property surrounds the DeBeers/MPV joint venture Gahcho Kué diamond mine currently in production (Figure 7-2).

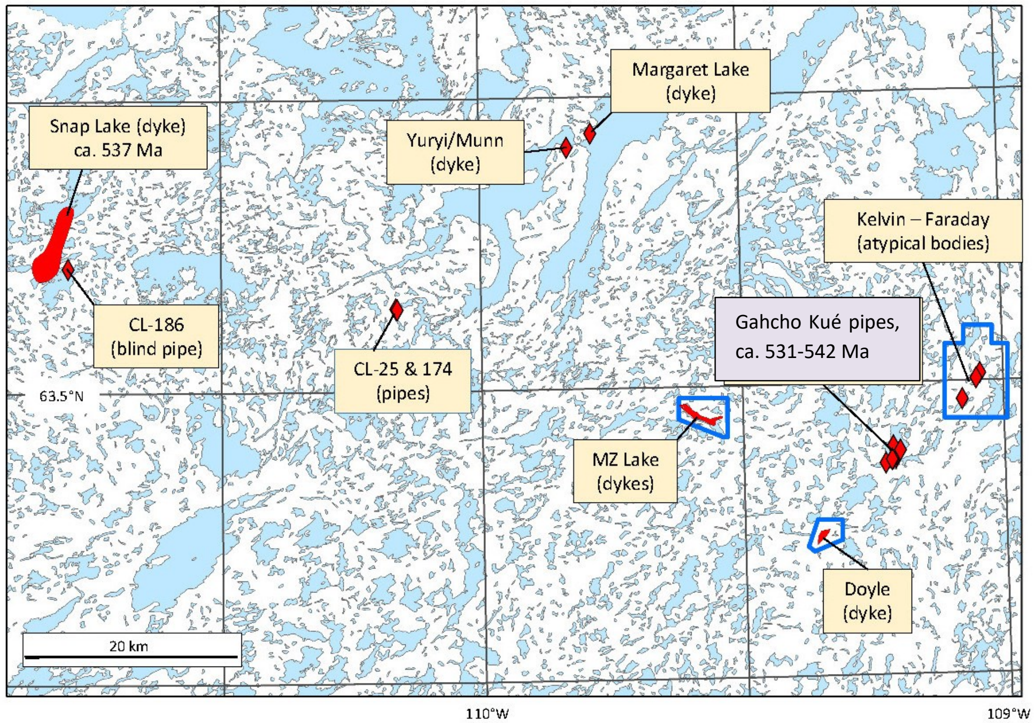

Figure 7-2. Kimberlite bodies of the southeastern Slave Craton with blue outlines delineating kimberlite bodies on the Kennady North Property.

The only published bedrock maps in this region are from Folinsbee (1952) and Cairns et al. (2003) at a scale of 1:250,000. The multidisciplinary study completed by Cairns et al., produced a number of lithological, metamorphic, structural and geochronological publications (e.g., Maclachlan et al., 2002; Cairns, 2003; and Cairns et al., 2005).

Multiple phases of kimberlite emplacement have occurred throughout the Phanerozoic Era in the Cambrian, Siluro-Ordovician, Permian, Cretaceous, Jurassic and Eocene periods (Heaman et al., 2003). Many of the kimberlites in the southeastern Slave craton form broad clusters with similar characteristics from other areas of the craton (Stubley, 2004).

Using classical terminology, kimberlite textures studied in the Slave craton are characterized solely by tuffisitic (TK), hypabyssal (HK), transitional (TK-HK) components as well as resedimented volcaniclastic (RVK)(Scott-Smith, 2008 and Hetman pers.comm 2019). Early Cambrian emplacement ages for the Snap Lake, Gahcho Kué and the first age dates for the Kelvin kimberlites are essentially identical, and contrast with all other kimberlite ages within the craton. The nature of the lithospheric mantle underlying the southeast craton also appears to be unique; a thicker (>220 to ~300 km) and cooler lithosphere at the time of kimberlite emplacement is documented by Kopylova and Caro (2004), Pokhilenko et al. (1998), and Agashev et al. (2008).

7.3 PROPERTY GEOLOGY

Aurora Geosciences Ltd. contracted Mike Stubley, Ph.D. (Stubley Geoscience Ltd.) to complete detailed mapping and structural analysis of the Kelvin-Faraday Corridor (KFC) as well as the MZ and Doyle Lake areas (blue areas outlined in Figure 7-2). Upon completion of the 10-week mapping program an internal report was produced for KDI. A summary of this report is used in this section.

7.3.1 *Kelvin-Faraday (KFC) Area Rock Types*

The following sections summarize the outcrop characteristics within the KFC and provide the most detailed property geology to date (Figure 7-3). Historical airborne geophysical data have been used to help define structure and lithological contacts.

7.3.1.1 Metasedimentary Rocks

The oldest rocks, and the host to all known kimberlite, comprise a turbiditic greywacke- mudstone sequence (Unit Asm), as constitutes more than 25% of the exposed Slave craton (Stubley, 2005; Figure 7-3). Upper-amphibolite metamorphic conditions have induced a mineral assemblage containing ubiquitous biotite and sillimanite (with quartz and feldspars), variable muscovite, and local garnet. Variable melting of the sedimentary sequence, particularly in the pelitic components (e.g., Fig. 7-4a), has produced common segregation fabrics and complex migmatitic textures. Anatectic melt phases ("neosome" of leucocratic granodioritic composition) are variably mobile. Planar beds typically range from 10 to 150 cm thick, but locally range from <4 to about 300 cm. Graded bedding is locally evident and is commonly expressed by increased aluminosilicate porphyroblasts and/or migmatitic textures in the upper pelitic (mudstone) zones (Fig. 7-4b). A spectacular zone of lichen-free, well-bedded metaturbidites east of Mag Lake lacks significant in situ melt phases and preserves many primary sedimentary features.

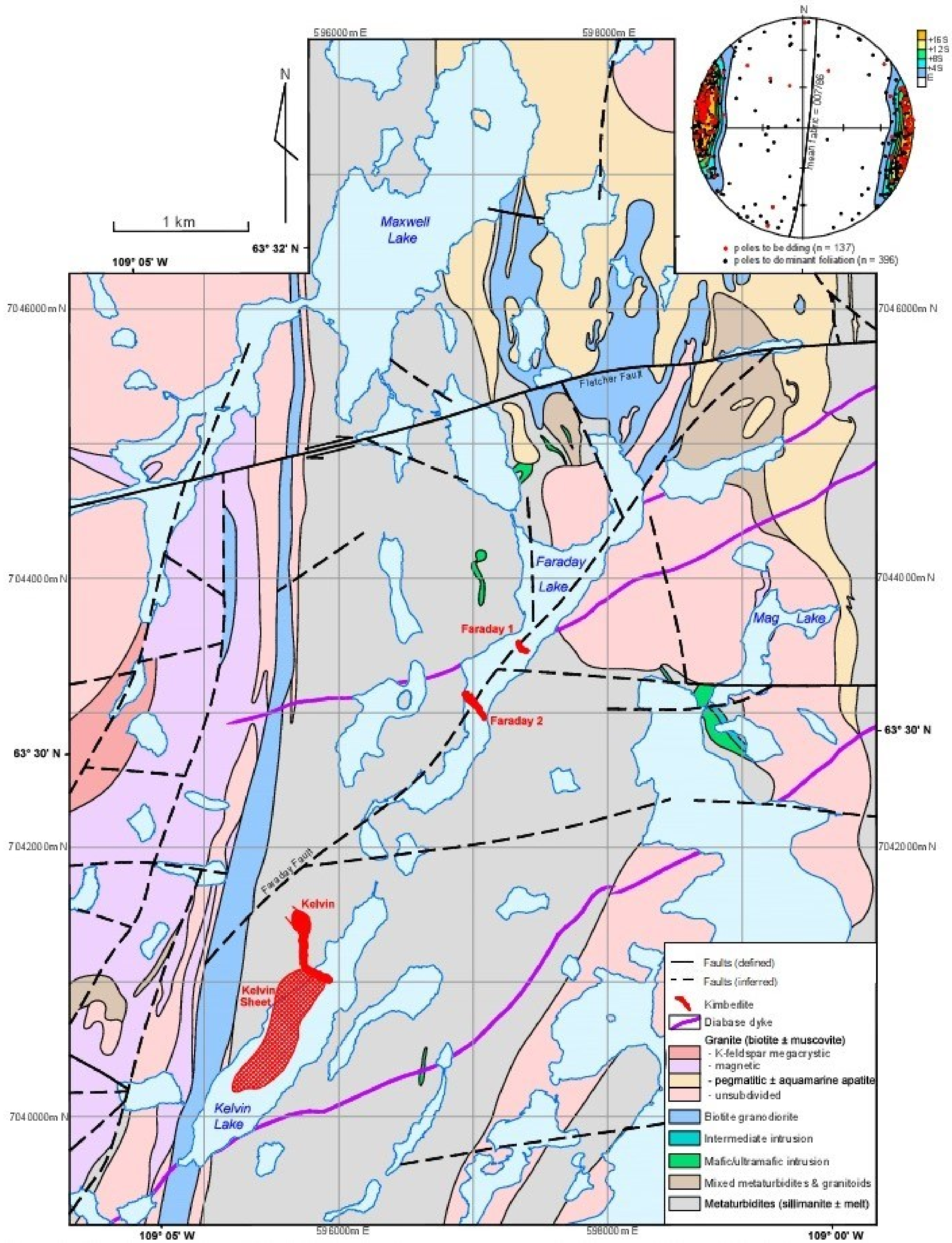

Figure 7-3. Simplified geology of the KFC (Stubley, 2015)

Inset in this figure shows poles to bedding and the dominant foliation on a lower hemisphere equal-area stereonet; Gaussian contouring at multiples of sigma above “expected” (Stubley, 2015).

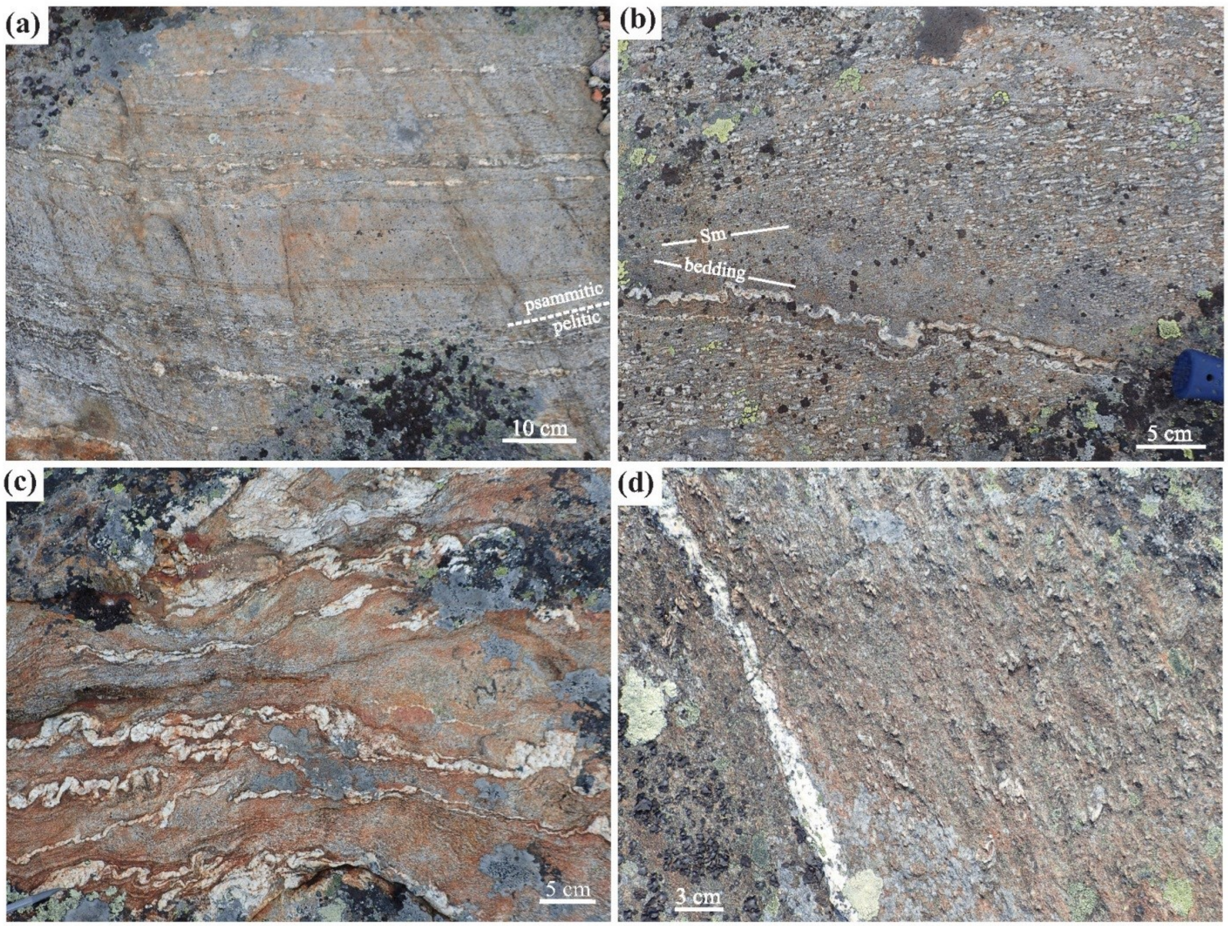

Figure 7-4. Photographs showing textural variations in metaturbidites (a-d)

(a) Typical thinly bedded metaturbidites with homogeneous schistose psammitic zones and heterogeneous recrystallized pelitic zones (Unit Asm; GR 596066E 7039405N). (b) Rare example of dominant foliation (Sm) oblique to bedding. Gradual increase in porphyroblast size and density reveals upward grading (sedimentary "fining") towards top of photo (Unit Asm; GR 597021E 7043929N). (c) Highly deformed turbiditic migmatite (Unit Amig; GR 599238E 7045782N). (d) Crenulated sillimanite ribbons with neosome and second-generation sillimanite along axial planes (Unit Asm; GR 599665E 7045814N)].

7.3.1.2 Mafic to Ultramafic Rocks

Medium- to very coarse-grained hornblende-plagioclase±biotite rocks are classified as gabbro and commonly exhibit a weak foliation and weak to no magnetism. The thickest zone of gabbro (ca. 100 m wide) at the southwest tip of Mag Lake locally approaches "hornblendite" composition with less than 20% plagioclase and incorporates sporadic zones with abundant garnet. This zone also exhibits complex zones of partial melting and diffuse plagioclase segregation.

7.3.1.3 Intermediate Intrusive Rocks

Three dyke-like exposures of fine- to very fine-grained homogeneous non-magnetic intermediate rocks are recognized; two are near the southwest part of Mag Lake and another poorly exposed example is about one kilometre west of Faraday 2. Each example appears to consist principally of quartz, feldspar and biotite. A smooth brownish-weathering surface is particularly susceptible to glacial scouring. A weak to moderate foliation is defined by aligned biotite, and local migmatitic segregation textures indicate emplacement prior to the peak of metamorphism.

7.3.1.4 Granitoids

Massive pink to whitish pegmatite dykes, with variable biotite, muscovite and tourmaline, transect all other granitoid phases; most mappable pegmatite bodies strike north-south. The 13 other granitoids are subdivided into eight somewhat-distinctive units. The oldest suite comprises whitish- to grey-weathering biotite granodiorite, with some zones containing minor muscovite (transitional to granite) and other zones with minor hornblende (transitional to tonalite). Multiple textural phases are recognized, and these are dominated by fine-grained well foliated to gneissic zones and by medium- to coarse-grained leucocratic and weakly foliated “chunky” zones (Figure 7-5a). The granodiorites have been subdivided based on the prevalence and intensity of magnetism in hand samples (biotite-muscovite-tourmaline granites, and hornblende to tonalite granites are generally non-magnetic and magnetic, respectively), rather than by macroscopic textures. The heterogeneity in both texture and magnetic response can be of sub-metre scale but is commonly consistent across individual outcrops.

All subdivisions of granite (*sensu stricto*) contain appreciable biotite and variable, but typically sparse, muscovite. Foliation development varies from moderate to imperceptible within each main phase; deformation and folding of internal veins indicate that all subdivisions were emplaced prior to final tectonism. Perhaps the most distinctive phase is the leucocratic granite, which is characterized by dense lath-like alkali-feldspar phenocrysts to about 4 – 5 cm length (Unit AgtK). The common alignment of these “K-spar megacrysts” is attributed primarily to igneous emplacement rather than subsequent tectonism. Muscovite is generally sparse or absent in this variably magnetic unit. In places, the K-spar megacrystic suite can be observed to have an internal shallow-dipping sheet-like morphology (Figure 7-5c). At surface, the megacrystic suite is confined solely to the westernmost area of mapping and is concentrated within a well-defined zone approximately 2 km northwest of the Kelvin kimberlite body (Figure. 7-3).

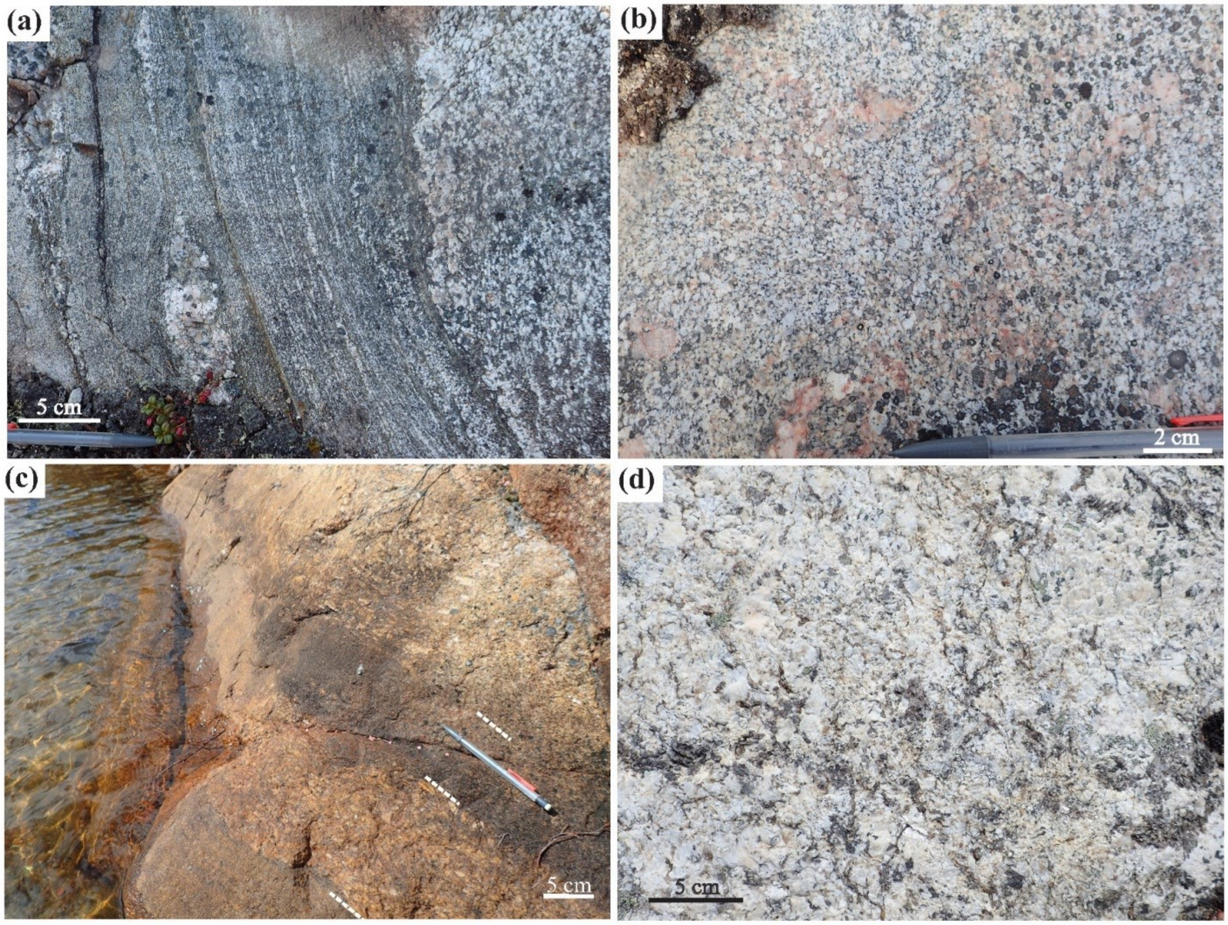

Figure 7-5. Photographs showing textural variations of the granitoid rocks (a-d)
(a) Multiphase non-magnetic biotite granodiorite; well-foliated to gneissic fine-grained phase on left and "chunky" medium- to coarse-grained leucocratic phase on right (Unit Agd; GR 594810E 7039626N). (b) Typical massive inequigranular magnetic granite (Unit Agtm; GR 594066E 7041517N). (c) Oblique view of shallow westward-dipping granitic layering; leucocratic layers dominated by aligned cm-scale feldspar laths (Unit AgtK; GR 594380E 7043134N). (d) Muscovite-rich phase of highly inequigranular to pegmatitic leucogranite (Unit Agtp; GR 599820E 7043700N).]

Strongly foliated biotite-rich granitoid with local centimetre-scale feldspar phenocrysts is exposed near the southwest extent of mapping. Its coarse segregation into quartz-feldspar- and biotite-rich seams, and its apparent transition to typical granite along its west margin, suggest a tectonic influence; the kinematics and lateral continuity of this zone are undetermined.

7.3.1.5 Proterozoic Diabase Dykes

Fine- to medium-grained massive diabase is poorly exposed in outcrop but can be traced by aeromagnetics. All dykes within the map area strike east-northeast and, where exposed, are subvertical and undeformed, with locally well-developed ophitic texture; moderate to strong magnetism is characteristic. The dykes are correlated with the undated "Fletcher" swarm (Stubley, 2005) of presumed Paleoproterozoic age (geochronology pending).

7.3.1.6 Metamorphic and Structural Aspects

The turbiditic greywacke-mudstone sequence is ideal for investigating metamorphism and its relationship to deformational events. In the Kelvin – Faraday area, the metaturbidites record sillimanite-grade metamorphism and partial melting, indicating upper amphibolite facies conditions and peak temperatures exceeding 700°C. Cairns et al. (2005) indicate pressures of about 7 kbar were associated with the high-temperature assemblages at Walmsley Lake (about 30 km east of the KFC area). Garnet is locally evident; high-temperature cordierite (gem-type iolite) was not recognized but would likely be evident petrographically. In places, two generations of sillimanite growth can be demonstrated.

7.3.1.7 Folding and Fabric Development

The tectonothermal history of the Kelvin – Faraday area is similar to many areas of the Slave craton, with one major additional complication as discussed below. In most outcrops, a single penetrative foliation is evident, and this is termed "Sm" (main or dominant foliation). Elsewhere within the Slave craton, Sm can be demonstrated to be related to the second regional deformation event, D2, that is constrained to about 2.6 Ga. The pan-Slave D2 event is associated with extensive shortening and thickening of crustal rocks, the onset of peak metamorphism and S-type granitoid emplacement, and formation of the principal orogenic gold deposits, among other features. Where recognized, features that predate Sm are ascribed to a D1 event (S1, F1), and features that postdate Sm are ascribed to D3 (S3, F3) and D4 (S4, F4), etc. With minor modifications, this model works reasonably well at Kelvin – Faraday.

Within sporadic zones of the northeast area of mapping, two episodes of sillimanite growth accompany development of discrete fabrics. Early sillimanite ribbons defining the dominant foliation are crenulated with the development of new sillimanite along the axial planes as a new crenulation cleavage (e.g., Fig. 7-4d). Within metres, the intensity of the newer crenulation cleavage obliterates evidence of the earlier foliation. As such, the sole "dominant foliation" (Sm) in the region is a S2-S3 transposition fabric with final formation during D3. Similar observations and interpretations are presented by MacLachlan et al. (2002) and Cairns et al. (2005) from regional-scale mapping. The timing of D3 in turbiditic migmatites is constrained to about 2585 Ma whereas D2 in lower-grade rocks is inferred to be ≥2603 Ma (Cairns et al., 2005), and this suggests that "Sm" is a product of two or more events spanning about 20 Ma.

A well-exposed transect across metaturbidites of the southernmost map area reveals numerous reversals in top directions in subparallel beds; the sole foliation (Sm) is subparallel to bedding. The top reversals are inferred to reflect the presence of F1 isoclinal folds formed during pre-2620 Ma D1, as is common throughout the craton. A discrete macroscopic and penetrative foliation associated with the proposed isoclinal folds, which would be termed S1, was not recognized in this study, and this relationship is also common in most studies within the Slave.

7.3.1.8 Faults and Fractures

The most-significant fault in the area is the Paleoproterozoic Fletcher Fault (Figure 7-3.) that can be traced regionally for almost 150 km (Stubley, 2005), and which also passes through the MZ Lake map area (discussed in a later section). Along its length, the fault records about 40-50 m subhorizontal dextral displacement associated with quartz veining/flooding, hematization of feldspar, and local occurrences of specular hematite and pyrite. Within the current map area, the fault is represented primarily by a topographic lineament and minimal expression in outcrop. It is not clear whether Fletcher Fault also records an earlier Proterozoic component of normal displacement, as is inferred for some other similarly oriented faults of the southeastern craton. Another significant Proterozoic fault strikes east-west and contributes to the geological complexity near southwest Mag Lake; an apparent sinistral offset of 50-60 m is recorded near the eastern limits of mapping, but a component of vertical displacement is also suspected.

Potential correlations between principal structures and the Kelvin and Faraday kimberlite bodies are not apparent from the current mapping. Our current knowledge of each of the kimberlite bodies indicates a shallow inclination towards the northwest towards their probable source. Although there are some northwest trending topographic lineaments, this orientation is poorly represented by significant faults or joint sets. It remains unclear how far to the northwest the bodies dip before a subvertical conduit is encountered, if at all.

7.3.2 *MZ Lake Area Rock Types*

The rock types and their characteristics are summarized in sections 7.3.2.1-7.3.2.4. Outcrop comprises only 1.1% of the total area while lakes comprise over 22% (Figure 7-6). An historical airborne magnetic survey was extremely helpful in the interpretation of the MZ area.

7.3.2.1 Granitoids

The bulk of the area is covered by a multiphase granitoid suite with variable magnetism. The broad architecture of the granitoid suite appears to be sheet-like; undulating and commonly shallow-dipping sheets of various composition and texture are interlayered on scales of metres (e.g., Figure. 7-7a) to tens of metres and possibly greater. Attempts to subdivide the granitoid suite into various mappable components are hindered due to the transitional nature of their relative proportions and due to their shallow disposition. The user is cautioned that all granitoid contacts should be viewed as “transitional” and that unit proportions may not be representative in the third dimension. Nevertheless, a tripartite subdivision of the granitoids appears to result in broad continuous zones in map view (e.g., Figure. 7-3).

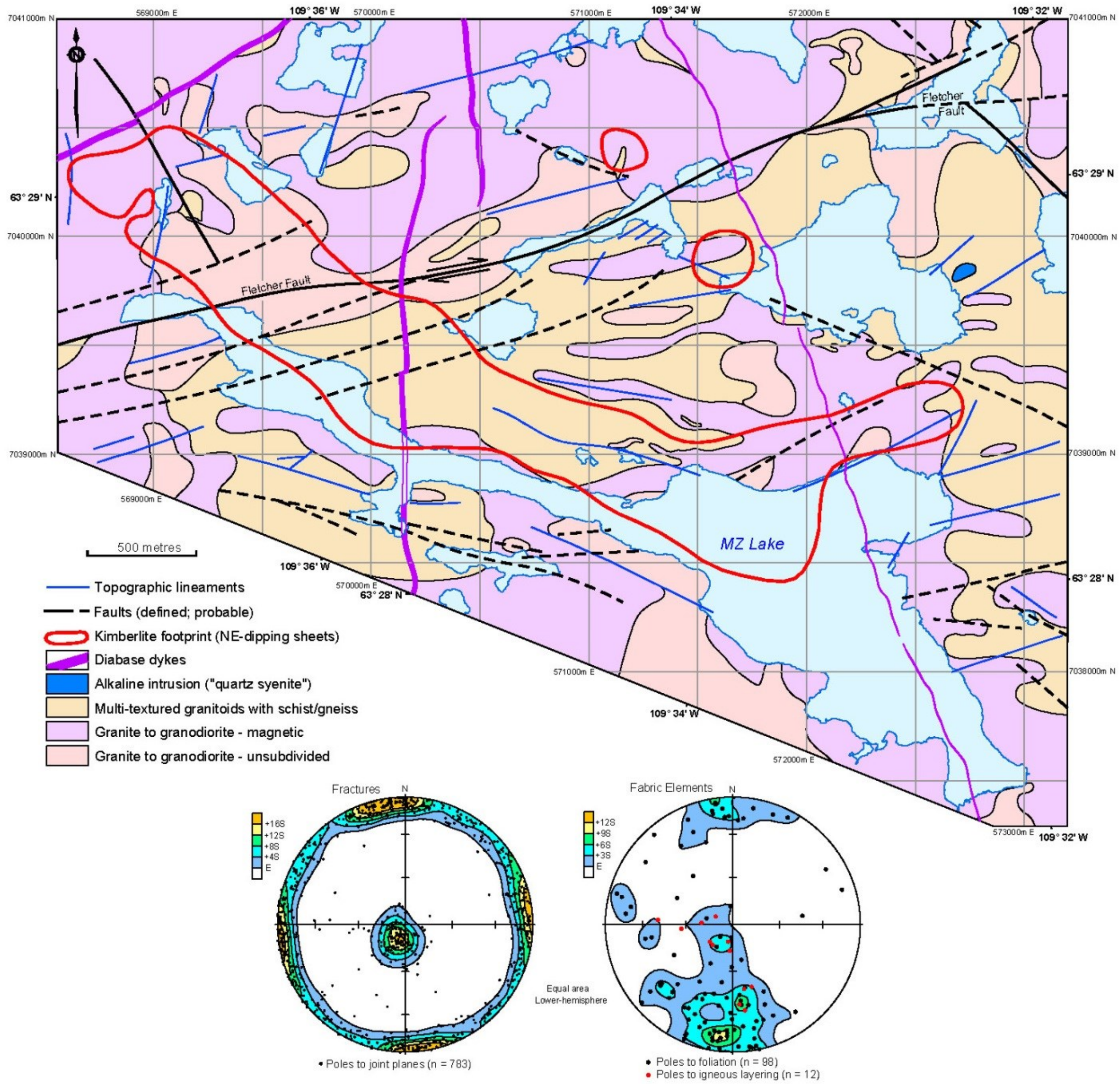

Figure 7-6. Simplified geology map of the MZ Lake area showing kimberlite sheet as known prior to 2015.

Insets show principal structural measurements on lower-hemisphere equal-area stereonets; Gaussian contouring at multiples of sigma above "expected" (Stubley, 2015)].

Figure 7-7. Photographs of granitoids in the MZ Lake area

(a) View to the north of moderately east-dipping "igneous layering"; interlayered tonalitic gneiss, quartz-biotite schist and massive granite (Unit Aggn; GR 570566E 7039731N). (b) Wayne Barnett examining fine-grained brick-red quartz-poor syenitic frost-heave (Unit APsy; GR 572723E 7039830N). (c) Subhorizontal joints in multiphase granitoids impart a step-like outcrop disposition (Unit Aggn; GR 571290E 7039073N). (d) Typical expression of Proterozoic fault activity; reddish hematitic feldspar, quartz veining/flooding, trace sulphides, and local open-cavity quartz infilling (altered part of Unit Aggn; GR 569775E 7038695N)].

The granitoid suite is composed primarily of pink to grey medium-grained to moderately inequigranular, and locally porphyritic, granite to granodiorite. This component is commonly massive, or rarely weakly foliated, and contains biotite and local muscovite that typically comprise <10% of the rock combined.

7.3.2.2 Alkaline Intrusion

An unusual zone of fine-grained brick-red frost heave is exposed in the eastern map area (Figure. 7-7b).

An internal geochemical evaluation has determined rock-type classifications ranging from alkali-feldspar quartz syenite to quartz monzonite; an average "quartz syenite" classification is deemed appropriate until petrological examination is conducted.

7.3.2.3 Diabase Dykes

Three diabase dykes are recognized within the map area (Figure 7-7), and despite their poor preservation in outcrop, can be traced by their pronounced aeromagnetic signature. A strongly magnetic north-northwest striking dyke transects eastern MZ Lake and is presumed to be representative of the 1267 Ma Mackenzie swarm. In two locations, the Mackenzie dyke can be constrained to <3 metres width. A northeast-striking dyke, about 20 m wide, in the northwest zone of mapping is correlated with the “Fletcher” swarm of Stubley (2005), although most other authors (e.g., Buchan et al., 2010) have attributed this to the MacKay swarm.

7.3.2.4 Metamorphic and Structural Aspects

Three prominent sets of joints are developed within the granitoid suites (Figure. 7-6 inset), and their orientations are remarkably similar to those from the Kelvin – Faraday area. The most prevalent set is subvertical and strikes east-northeast subparallel to Fletcher Fault. Another subvertical set is nearly orthogonal, and predominantly strikes slightly west of north. Approximately 5% of measured steep joints (of variable strike) had alteration haloes, quartz infilling, or some indication of probable displacement. Subhorizontal joints, with a preferential tendency to dip slightly towards the northeast quadrant (subparallel to kimberlite sheets), commonly impart step-like appearances to outcrops (Figure 7-7c).

Abundant evidence for Proterozoic brittle faulting is preserved in the MZ Lake area. The most prominent feature is the dextral curviplanar Fletcher Fault and its associated splays; secondary faults appear to nucleate on smooth bends in Fletcher Fault as accommodation features (Figure 7-6). Another prominent set of faults of uncertain kinematics strikes to the northwest and may underlie the long arm of MZ Lake. All of the designated faults are marked by linear zones of reduced magnetic response, reddish hematitic alteration of feldspars, and abundant quartz infiltration (Figure 7-7d); sporadic zones with moderate epidote and/or minor pyrite are also noted.

Features of the host rocks that might have influenced emplacement of the thin shallow northeast-dipping kimberlite sheets are unknown. The subparallel orientation of many shallow joints is intriguing, but questions remain regarding the timing and vertical extent of the joints (discussed in a later section). The variably oriented “igneous layering” is locally subparallel to the kimberlite sheets but is deemed too irregular to have influenced the semi-planar kimberlite location; cursory review of some drill core did not reveal a correlation between kimberlite location and lithological layering. The only structure of the map area that potentially has vertical extent more than about 10 kilometres is Fletcher Fault, but there seems no obvious reason why kimberlite would have exploited this regional feature at MZ Lake. However, two highly anomalous features of the small map area, both of which are assumed to reflect mantle-depth activity, might warrant further consideration; these are the small alkaline intrusion and the MZ diabase dyke.

7.3.3 *Doyle Lake Area Rock Types*

A total of four days was spent mapping in the Doyle lake area. Outcropping accounts for 2.5% (Figure 7-8), while lakes comprise 5.4% of the map area. A majority of the outcrops are within 600 m of a major esker and as such a historical airborne magnetic survey was used for geological interpretation.

7.3.3.1 Rock Types

Little mappable variation is noted in most outcrops of the Doyle area (Figure 7-8). The bulk is massive and unfoliated multi-textured white- to pink-weathering granodiorite to granite (Unit Agt). Most is medium- to coarse-grained, but some zones are markedly inequigranular with porphyritic to pegmatitic phases. Biotite typically accounts for 5 – 12%; muscovite is absent (or rare). Magnetism is variable at sub-metre scales but is commonly moderate to strong (except adjacent to Proterozoic fault zones).

In places, the massive granitoid suite incorporates a subordinate component of foliated material (Unit Aggn). In the eastern part of the map area, the foliated components are typically subtle or comprise narrow panels of quartz-biotite schist, and commonly account for less than 5-10% of any outcrop; a field term of “dirty granite” was employed during mapping. In the Half Moon Lake area (Figure 7-8), moderately foliated granite-granodiorite, fine-grained quartz-biotite schist, and locally gneissic granitoids, contribute to the heterogeneity of this unit.

A single small outcrop of fine-grained leucogabbro to diorite intrudes a prominent 3 m-wide lineament through granitoid outcrops and is the only occurrence observed. The recessive dyke weathers white to medium brown and its principal components (plagioclase > hornblende) impart a distinctive black-and-white speckling. Moderate to strong magnetism is characteristic. The dyke appears massive and unfoliated, yet it is transected by a hematitic granite vein and this may suggest an Archean age.

Proterozoic diabase is represented by at least two dykes. A north-northwest striking dyke, presumably of the 1267 Ma Mackenzie swarm, fails to crop out within the map area, but is readily traceable by strong magnetic signature; it appears to alter its trend (i.e., “jog”) to follow Doyle Fault for about 250 metres. All outcrops, frost-heave, and drill intersections of diabase appear to belong to a different highly anomalous dyke exhibiting a segmented and irregular trace through the map area. The magnetic response suggests the single dyke “jogs” to follow parts of the Eagle, Doyle, and Mooseview faults (Figure 7-8), which is a geometry uncharacteristic of any named swarm of the Slave craton. This moderately to strongly magnetic diabase locally appears fractured and altered, and hosts quartz veins.

7.3.3.2 Structural Aspects

The massive nature of most outcrops hinders evaluation of the Archean structural history of the Doyle area. Foliation and “layering” within Unit Aggn exhibit inconsistent orientations (Fig. 7-8 inset); their general parallelism to contacts with adjacent Unit Agt may support an undulating sheet-like interface between the two units.

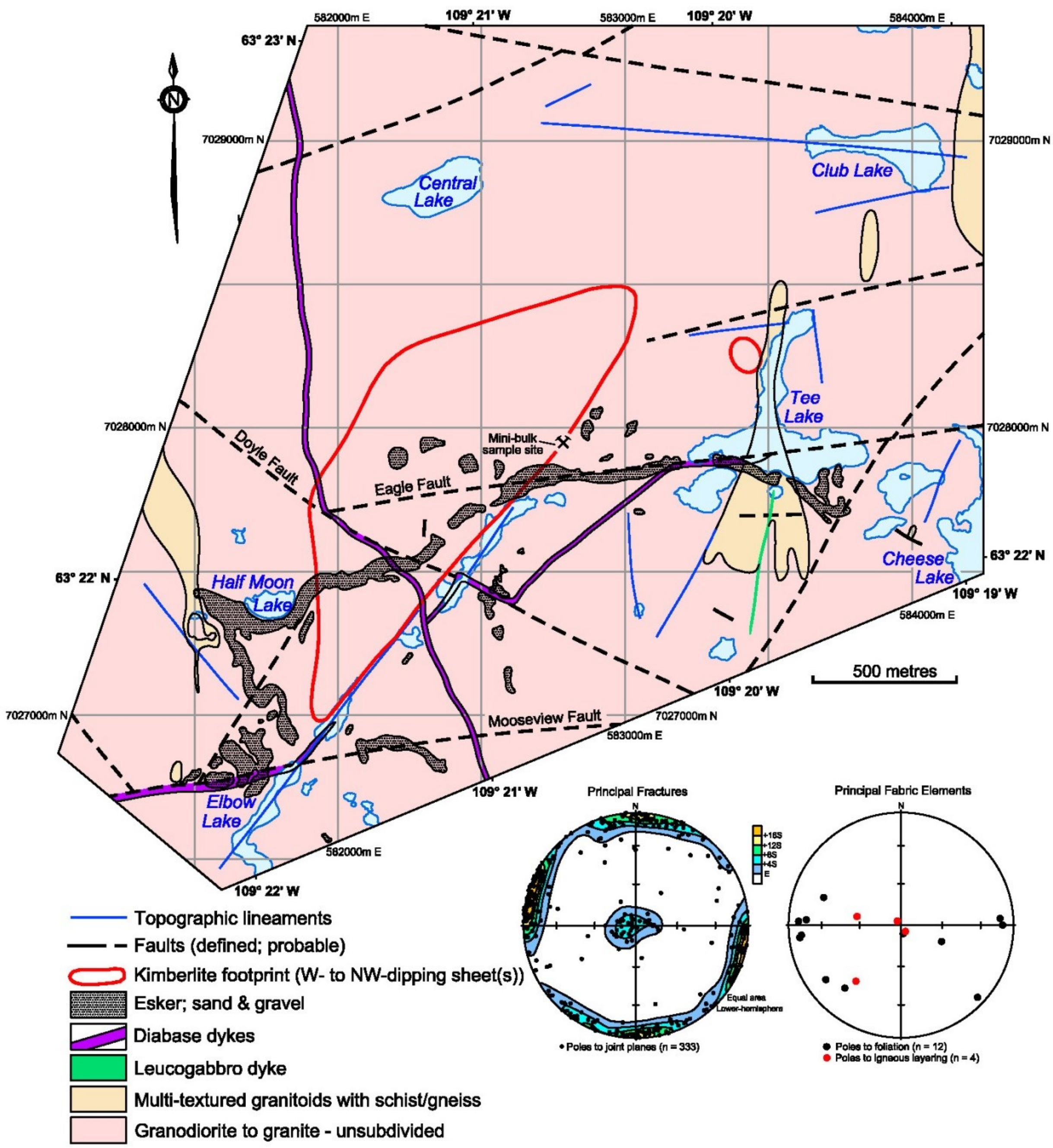

Figure 7-8. Simplified geology map of the Doyle Lake area with outline of the Doyle kimberlite as known pre-2015 Principal structural measurements are presented as insets on lower-hemisphere equal-area stereonets; Gaussian contouring multiples of sigma above expected (Stubley, 2015).]

Similar to the other map areas, three prominent sets of joints are recognized (Figure 7-8 inset). The most prominent and pervasive set is subvertical and strikes NNE, subparallel to the mafic dyke of Unit Amd. Another subvertical set strikes approximately east-west and does not show an obvious correlation with other features of the map area. Joints of both steep sets exhibit local indicators of alteration and probable displacement. Subhorizontal joints reveal a slight tendency to dip preferentially towards the northeast quadrant; hematitic alteration is anomalously associated with shallow joints in one outcrop.

Aeromagnetic imagery reveals linear zones of reduced magnetic intensity that are interpreted to represent Proterozoic brittle faults. Boulders and frost heave overlying Eagle Fault exhibit extensive hematitic alteration and quartz infiltration, chloritization of biotite, and local specular hematite and pods of massive pyrite. At least one outcrop adjacent to Doyle Fault exhibits similar hematitic and siliceous alteration. Review of regional airborne geophysical imagery suggests Doyle Fault is through-going, with many other faults (including Eagle and Mooseview) terminating on it (see Figure. 7-8). Two subvertical metre-scale faults parallel to Doyle Fault are exposed in continuous outcrop and are characterized by extensive hematitic alteration and quartz veining; kinematics was not determined. An anomalous area of fault-related deformation and alteration is exposed near the intersection of Doyle and Eagle faults (see accompanying map); prominent north-south layering and “flakey” fragmentation (with hematite and quartz alteration) are of uncertain origin.

At present, the extent of shallow-dipping kimberlite is poorly constrained, and the source of magma and its flow direction are unknown. Nevertheless, and despite the presence of several significant Proterozoic faults, there appears to be no obvious structure that controls the kimberlite disposition. Outcrop-scale joints do not, in general, reveal parallelism with the kimberlite sheet(s).

7.3.4 *Kelvin Kimberlite Detail Geology*

This section is modified from industry reports SRK (2016b, c, d, g). Kimberlite descriptions and classifications follow the terminology from Scott-Smith et al. (2013).

7.3.4.1 Introduction

All geological work at Kelvin has been completed by Aurora Geosciences Ltd. (AGL) under the guidance and supervision of Casey Hetman, P.Geo. of SRK Consulting (SRK). The core logging methods have evolved over time with detailed logging, following strict standard operating procedures established by SRK and AGL, and petrographic work on representative core samples has been undertaken since late 2013. In 2015, detailed logging and petrographic analysis of 11,402.83 m of kimberlite core led to the identification and characterization of six kimberlite units infilling the Kelvin pipe as described in Section 7.3.4.2 below. Logging and petrographic analysis of an additional 26 drill cores in 2016 served to confirm continuity of the rock types between the South and North limbs of the body, and along strike in the North limb. The 3-D geological model for Kelvin comprises a well constrained external pipe shell model and internal geology model, both of which were constructed by Michael Diering of SRK as outlined in Section 7.3.4.3. The core logging, petrography and geological model have been subject to independent review by Kimberley Webb, P.Geo. of Mineral Services Canada (MSC15/025R, MSC16/004R, MSC16/014R, MSC16/017R).

Extensive drilling of the Kelvin kimberlite has defined it as an irregular, subhorizontal, L-shaped inclined pipe infilled primarily by volcaniclastic kimberlite classified as Kimberley-type pyroclastic kimberlite (KPK), as well as hypabyssal kimberlite (HK) and minor kimberlite transitional in texture between KPK and HK. The combination of the geometry of Kelvin and its’ internal ‘layer cake’ stratigraphy are unconventional relative to other known kimberlite bodies (Section 8).

7.3.4.2 Kelvin kimberlite rock types and sub-domain characteristics

Six internal kimberlite rock types or phases have been defined at Kelvin on the basis of textural characteristics; primary mineralogy, country rock xenolith content, contact relationships, interpreted emplacement processes and diamond results: KIMB1 through KIMB7 (no KIMB5). Rock types KIMB2 and KIMB3 have been further subdivided into subdomains based on textural variations and differing country rock xenolith content, respectively (Table 7-1). Initially interpreted to represent a discrete rock type, KIMB5 has subsequently been determined to be altered equivalent of KIMB3A, a subdomain of KIMB3. A hypabyssal kimberlite (KIMB8) occurs as a sheet or irregular intrusion adjacent to the Kelvin pipe.

Table 7-1. Kelvin kimberlite rock types and subdomain characteristics

Rock Types	Subdomain	**Subdomain Discriminator**
KIMB1	n/a	
KIMB2	KIMB2A	Mostly KPK texture
	KIMB2B	Mostly HK texture
KIMB3	KIMB3A	Low country rock dilution <40%
	KIMB3B	Moderate country rock dilution 40-75%
	KIMB3C	High country rock dilution >75%
KIMB6	n/a	
KIMB4	n/a	
KIMB7	n/a	

The macroscopic characteristics of the different kimberlite rock types established by the end of 2015 are summarized in Table 7-2. Figure 7-10 shows the rock types in representative core photographs. More detailed petrographic descriptions of the rock types in sequence (from top to bottom of the body) are provided in Sections 7.3.4.2.1 through 7.3.4.2.7 and these are summarized in Table 7-3. The rock types have been grouped into geological domains that form the basis of the 3-D internal geology model, as described in Section 7.3.4.3.

Table 7-2. Summary of the macroscopic characteristics of the Kelvin kimberlite rock types established by end of 2015

Kimberlite Unit / Sub-Unit	KIMB1	KIMB2		KIMB3			KIMB6	KIMB4	KIMB7
		KIMB2A	KIMB2B	KIMB3A	KIMB3B	KIMB3C			
Textural Classification	KPK	KPKt-CKt	CK	KPK	KPK	KPK	KPK	KPKt-CKt-CK	KPK-KPKt
CR Dilution %	15-25	10-25	10-15	15-40	40-75	>75	>50	5-15	15-30
CR Alteration Intensity	Moderate to strong; Medium to dark green	Strong; Pale milky green to dark green	Intense; Dark green - black with white clinopyroxene halos	Moderate to strong; Medium to dark green	Fresh to weak; Grey to light green	Fresh to very weak; Grey to light green	Fresh to very weak; Grey to light green	Moderate to strong; Medium to dark green	Moderate to strong; Medium to dark green
Olivine Total Abundance %	25-40	35-45	40-55	20-40	15-30	5-20	20-35	30-50	20-40
Olivine Macrocryst Abundance %	10-20	20-25	20-25	10-20	5-20	5-10	5-15	10-25	15-20
Olivine Macrocryst Size Range	f-m+c	f-m+c; f-c	f-c	f-m+c	f-m+c	f-m+c; f-m	f-m+c	f-c	f-c
Presence of Magmaclasts	Yes	Possible	No	Yes	Yes	Yes	Yes	No	Yes
Matrix	Clastic matrix	Clastic matrix > Groundmass	Groundmass > Clastic matrix	Clastic matrix	Clastic matrix	Clastic matrix	Clastic matrix	Groundmass > Clastic matrix	Clastic matrix
Packing	Matrix to loose packed clast supported	Matrix supported	-	Matrix supported	Matrix to loose packed clast supported	Tightly packed clast supported	Matrix supported	-	Matrix supported
Presence of Mantle Indicator (Garnet)	Absent to rare	Rare	Rare	Rare to occasional	Rare to occasional	Rare to occasional	Rare to occasional	Rare to occasional	Rare to occasional
Presence of Mantle Xenolith	Not observed	Rare	Not observed	Rare	Not observed	Rare	Occasional	Occasional	Occasional
Presence of Kimberlite Autoliths	Not observed	Not observed	Not observed	Rare	Rare	Rare	Abundant	Occasional	Occasional to abundant

Figure 7-9. Drill core photographs of the Kelvin kimberlite rock types in the South (left) and North (right) Limbs

7.3.4.2.1 *KIMB1*

KIMB1 occurs as a minor discontinuous rock at the top of the body in contact with the wall rock.

- **Textural classification:**
  Massive, homogeneous, loose packed clast supported f-m+c grained KPK.
- **Olivine population:**
  Chaotic olivine distribution.
  Visual estimate of olivine modal abundance is an average of 35% ranging between 25% and 40%.
  Broken olivine crystals may be present but are typically unbroken.
- **Magmaclasts:**
  Pelletal shaped, thin skinned with rare OLVp.
  Thicker melt selvages are usually associated with shard-shaped country rock fragments.

- **Groundmass (within melt selvages):**
  Phlogopite, spinel and perovskite.
- **Matrix:**
  Dominated by microlites and serpentine.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Mostly moderately altered with some fresh K-feldspar xenocrysts.
  Visual dilution averages 22%, ranging between 15% and 40%.

7.3.4.2.2 *KIMB2*

KIMB2 is the second most abundant kimberlite rock type at Kelvin and occurs above KIMB3, the dominant phase present within the pipe. The domains KIMB2A and KIMB2B are distinguished by differences in texture, KIMB2A being mainly KPK and KIMB2B primarily CK. The textural classification of KIMB2B is complicated by the fact that despite having uniform olivine distribution (as is typical of hypabyssal kimberlite), most intervals lack well crystallized groundmass and contain conspicuous microlites surrounding olivine crystals and country rock xenoliths, features more typical of KPK or transitional-textured rocks (KPKt, HKt).

KIMB2A

- **Textural classification:**
  Massive, homogeneous, loose packed clast supported, f-m+c grained KPK.
  May be transitional – KPKt or CKt.
- **Olivine population:**
  Uniformly distributed OLVm and OLVp.
  Visual estimate of olivine modal abundance averages 38% ranging between 35% and 45%.
- **Magmaclasts:**
  Thin skinned pelletal shaped and symmetrical with poor groundmass development.
  Rare OLVp observed within melt selvages.
- **Groundmass:**
  Typically, phlogopite, spinel and perovskite.
  Matrix:
  Microlitic and abundant serpentine – generally lacks ash sized particles typical of KIMB3.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Mostly highly altered and kimberlitized.
  Visual dilution averages 14.5%, ranging between 7% and 20%.

KIMB2B

- **Textural classification:**
  Massive, homogeneous f-c grained HK
  May be transitional including KPKt.
- **Olivine population:**

Fairly uniformly distributed OLVm and OLVp.
Mostly serpentinized, with rare fresh olivine within endmember CK
Visual estimate of olivine modal abundance is an average of 39% ranging between 25% and 50%.

- **Groundmass (within melt selvages):**
  Clinopyroxene typically developed in groundmass patches.
- Phlogopite, spinel and perovskite.
- **Matrix:**
  Microlitic
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Typically, extensively digested resulting in the development of distinctive clinopyroxene in the groundmass.
  Most xenoliths are kimberlitized.
  Visual dilution averages 9.4%, ranging between 3% and 20%.

7.3.4.2.3 *KIMB3*

KIMB3 is volumetrically the most significant kimberlite rock type within the Kelvin pipe. It is a massive volcaniclastic rock containing variable amounts of locally derived gneissic and granitic xenoliths. The xenolith abundance increases gradationally with depth through KIMB3 leading to its subdivision into KIMB3A, KIMB3B and KIMB3C which are defined as having less than 40%, 40-75% and greater than 75% country rock dilution, respectively. A juvenile kimberlite matrix is variably fine to coarse-grained in units KIMB3A and KIMB3B while KIMB3C is characterized by a pulverized country rock matrix with little juvenile material present.

KIMB3A (low country rock dilution)

- **Textural classification:**
  Massive, homogeneous, loose packed clast supported f-m+c grained KPK.
- **Olivine population:**
  Non-uniform OLVm and OLVp distribution.
  Altered and serpentinized.
  Visual estimate of olivine modal abundance is an average of 23% ranging between 15% and 30%.
- **Magmaclasts:**
  Thin skinned with poor groundmass development and thicker melt selvages associated with country rock clasts, particularly shard-shaped xenocrysts.
- **Groundmass (within melt selvages):**
  Phlogopite, spinel and perovskite.
- **Interclast matrix:**
  Variable. Mostly microlitic with variable ash sized particles and serpentine, may be clay altered.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet with kelyphite rims and spinel.
- **Country rock xenoliths:**
  Conspicuous biotite xenocrysts (brown and green varieties).
  Visual dilution averages 41%, ranging between 20% and 50%.

KIMB3B (moderate country rock dilution)

- **Textural classification:**
  Massive, homogeneous, close packed clast supported f-m grained KPK.
- **Olivine population:**
  Chaotic olivine distribution.
  Common broken olivine crystals.
  Visual estimate of olivine modal abundance is an average of 18% ranging between 10% and 30%.
- **Magmaclasts:**
  Thin skinned with poor groundmass development and thicker melt selvages associated with country rock clasts, particularly shard-shaped xenocrysts.
- **Groundmass (within melt selvages):**
  Poorly defined and altered.
- **Matrix:**
  Mostly turbid with ash sized particles.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Mostly fresh locally derived unaltered xenoliths and xenocrysts (mostly K-feldspar).
  Conspicuous biotite xenocrysts (brown and green varieties).
  Visual dilution averages 47%, ranging between 20% and 70%.

KIMB3C (high country rock dilution)

- **Textural classification:**
  Massive, homogeneous, close packed clast supported f-m grained KPK.
- **Olivine population:**
  Common broken olivine crystals.
  Chaotic olivine distribution.
  Visual estimate of olivine modal abundance is an average of 8% ranging between 1% and 25%.
- **Magmaclasts:**
  Thin skinned with poor groundmass development and thicker melt selvages associated with country rock clasts, particularly shard-shaped xenocrysts.
- **Groundmass (within melt selvages):**
  Highly altered and difficult to discern.
- **Matrix:**
  Turbid and very ashy.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Typically, fresh country rock xenoliths and xenocrysts (K-feldspar common).
  Biotite xenocrysts common (both brown and green varieties).
  Rare autoliths may also be present.
  Visual dilution averages 78%, ranging between 45% and 90%.

7.3.4.2.4 *KIMB6*

KIMB6 is a minor rock type that occurs discontinuously along the pipe below KIMB3. It is similar in appearance to KIMB3C and is distinguished primarily based on the presence of more conspicuous juvenile material, in particular olivine macrocrysts, and distinctive autoliths of CK.

- **Textural classification:**
  Massive, homogeneous, loose packed clast supported f-m+c grained KPK.
- **Olivine population:**
  Visual estimate of olivine modal abundance is an average of 24% ranging between 20% and 35%.
- **Magmaclasts:**
  Thin skinned with poor groundmass development and thicker melt selvages associated with country rock clasts, particularly shard-shaped xenocrysts.
- **Groundmass (within melt selvages):**
  Altered and not determined with confidence.
- **Matrix:**
  Typically, turbid with ash-sized particles.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Visual dilution averages 78%, ranging between 60% and 90%

7.3.4.2.5 *KIMB4*

KIMB4 is a minor discontinuous rock type at the base of the pipe; it is closely associated spatially with KIMB7. The morphology and relationship of these rocks is not as well constrained as the other units in Kelvin.

- **Textural classification:**
  Massive, homogeneous f-m+c grained HK, may include HKt.
- **Olivine population:**
  Two generations with OLVp fairly uniformly distributed.
  Visual estimate of olivine modal abundance is an average of 35% ranging between 20% and 40%.
- **Groundmass:**
  Phlogopite, spinel and perovskite.
  Inhomogeneous in areas due to digested country rock xenoliths.
  Dominated by phlogopite which may be coarsely crystalline.
  Uniform size and distribution of groundmass spinel.
- **Mantle derived indicator minerals:**
  Occasional garnet.
- **Country rock xenoliths:**
  Mostly altered and digested country rock xenoliths.
  Visual dilution averages 18%, ranging between 5% and 30%.

7.3.4.2.6 *KIMB7*

KIMB7 is a minor discontinuous rock type at the base of the body; it is closely associated spatially with KIMB4. A distinctive feature of KIMB7 relative to the other volcaniclastic rocks at Kelvin is the presence of more common thicker melt selvages on magmaclasts.

- **Textural classification:**
  Massive, homogeneous, loose packed clast supported f-m+c grained KPK.
- **Olivine population:**
  Visual estimate of olivine modal abundance is an average of 20% ranging between 15% and 40%
- **Magmaclasts:**
  Thin to thick skinned with poor groundmass development and thicker melt selvages associated with country rock xenoliths.
- **Groundmass (within melt selvages):**
  Phlogopite, spinel.
- **Matrix:**
  Typically, turbid with common ash-sized particle and microlitic in places.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Visual dilution averages 34%, ranging between 10% and 40%.

7.3.4.2.7 *KIMB8*

KIMB8 is interpreted to represent a sheet or irregular intrusion adjacent to the Kelvin pipe.

- **Textural classification:**
  Mostly massive HK with minor flow features present.
- **Olivine population:**
  Visual estimate of olivine modal abundance is an average of 44% ranging between 15% and 60%.
- **Groundmass:**
  Phlogopite, spinel, carbonate, perovskite.
- **Mantle derived indicator minerals:**
  Generally absent; may include rare garnet.
- **Country rock xenoliths:**
  Visual dilution averages 3%, ranging between 0% and 10%.

Table 7-3. Summary of key petrographic features of the Kelvin kimberlite rock types (December 2016)

Unit	Textural Classification	Matrix	OLVm size	Average OLV%	Distinguishing feature
KIMB1	KPK	Microlitic	f-m+c	35	Kimberlite selvages on CR, thin skinned melt rims on OLV.
KIMB2A	KPK –KPKt	Microlitic	f-m+c	38	Loosely packed KPK, extensively altered CR, very thin selvages.
KIMB2B	CK-KPKt	Crystalline or Microlitic	f-c	39	More tightly packed KPKt to HK. Larger OLVm population, CPX patches associated with kimberlitized CR xenoliths.

KIMB3A	KPK	Microlitic with some ash sized particles	f-m+c	23	**Low dilution.** Incomplete, thin to thick rims on OLVms. Thicker rims on CR xenoliths and xenocrysts (mostly K-feldspar), which are mostly unaltered.
KIMB3B	KPK	Ashy	f-m	18	**Moderate dilution**. Thicker rims on CR xenoliths and xenocrysts (mostly K-feldspar), which are mostly unaltered, BIO xenocrysts (brown and green) common.
KIMB3C	KPK	Ashy and turbid	f-m	8	**High dilution.** Broken OLV's common. Thicker rims on CR xenoliths and xenocrysts (mostly K-feldspar), which are mostly unaltered, BIO xenocrysts (brown and green) common.
KIMB6	KPK	Ashy and turbid	f-m+c	14	**High dilution. HK a**utoliths common. Thicker rims on CR xenoliths and xenocrysts (mostly K-feldspar), which are mostly unaltered, BIO xenocrysts (brown and green) common
KIMB4	CK-CKt	Crystalline	f-m+c	35	Well-developed groundmass dominated by PHL, abundant digested CR.
KIMB7	KPK	Ashy	f-m+c	20	**Moderate dilution**. Thick melt selvages containing OLVp. Unaltered CR xenoliths and xenocrysts (mostly K-feldspar).

7.3.4.3 Kelvin kimberlite 3-D geological model

The 3-D geological model of the Kelvin kimberlite has been developed over the past three years, with the current version incorporating all drilling and geological/petrographic information to October 28, 2016. The model was constructed by Mike Diering of SRK using Leapfrog Geo™ software (V3.1.1) with Martina Bezzola and Casey hetman. It consists of an external pipe shell model that defines the morphology and extent of the body, and an internal geology model that represents the spatial distribution of the kimberlite units infilling the pipe.

7.3.4.3.1 *External pipe shell model*

The Kelvin pipe shell model incorporates all volcaniclastic and coherent kimberlite units considered to be spatially continuous and internal to the pipe. Any kimberlite considered to represent sheets or irregular intrusions adjacent to the main body have not been modelled as part of the Kelvin body. Kelvin is an irregular, sub-horizontal, shallow-inclined pipe (dipping at 15-20°) that varies in thickness between 60 m at the south end to over 200 m at the north end, and in width between 30 m at the south end to over 70 m at the north end. It is L-shaped with the two 'limbs' being referred to as the South and North Limbs, as shown in Figure 7-10.

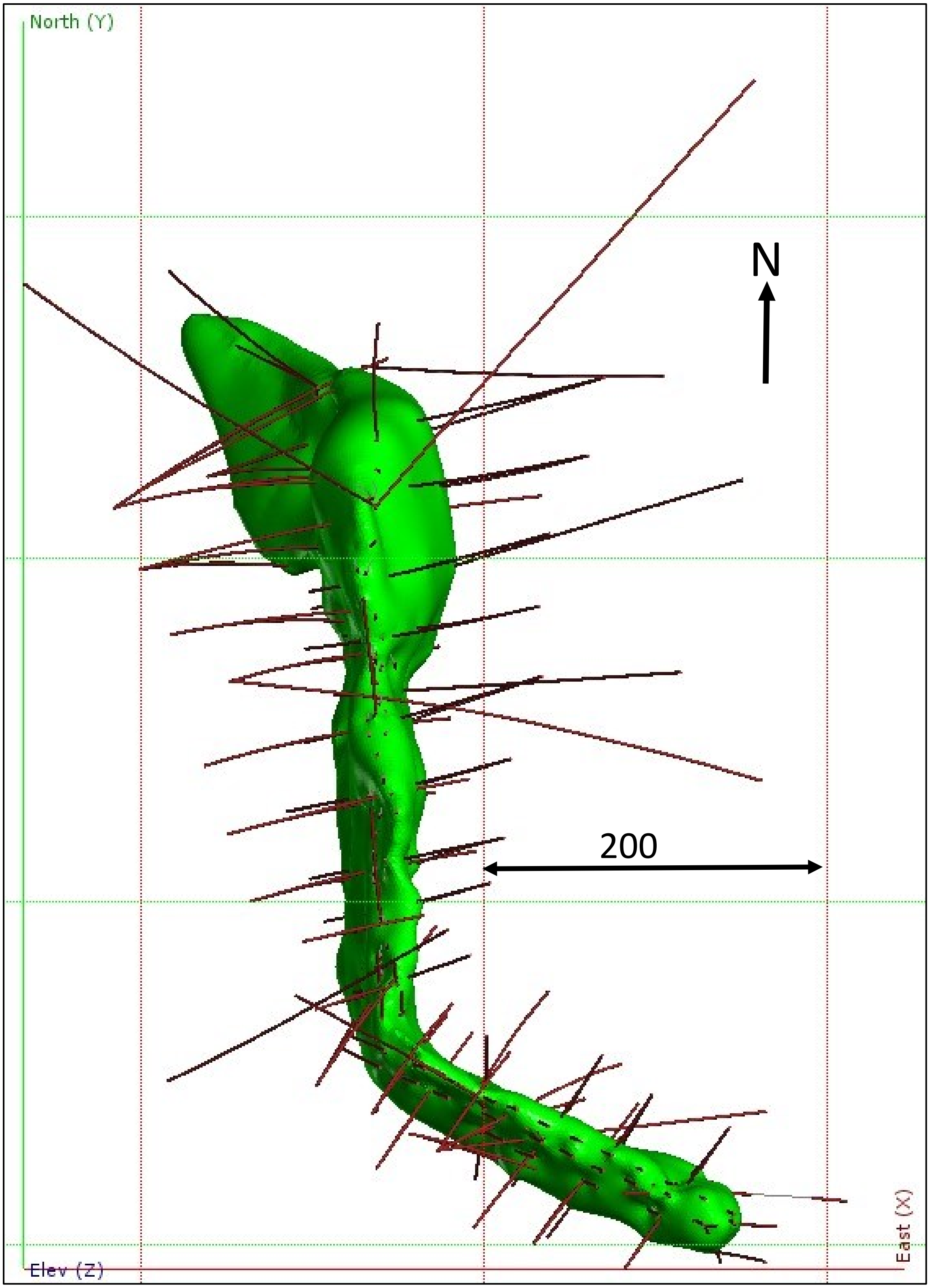

Figure 7-10. Plan view of external pipe shell model of the Kelvin kimberlite (December 2016)

7.3.4.3.2 *Internal geology model*

The kimberlite rock types described in Section 7.3.4.2 above form the basis of the internal geology model which comprises nine geological domains, eight of which are kimberlite domains, as shown in Table 7-4 and Figure 7-11. Some of the domains correspond to single rock types whereas others comprise groups or subdivisions of rocks or phases, in order to provide a more reliable basis for resource estimation (Section 14). The subunits of KIMB2 (KIMB2A and KIMB2B) have been modelled as separate domains due to their textural differences; the subunits of KIMB3 (KIMB3A, KIMB3B, KIMB3C) have also been modelled individually due to differences in country rock dilution (and associated impact on grade). In contrast, KIMB4 and KIMB7 have been combined into a single geological domain (KIMB4/7) as these rock types are thin, volumetrically small and morphologically complex to be reasonably modelled on an individual basis. The internal model reveals that the geological domains vary significantly in morphology along strike, but broadly conform to a "layer cake" organization that is continuous along strike. The ninth domain (CRX) represents internal waste rock and includes material interpreted as very large country rock xenoliths (drill hole intercepts > 5 m) and possible wedges of *in situ* country rock within the pipe shell, where these could be delineated based on available drilling.

In an earlier version of the internal geology model, when the distribution and character of the kimberlite rock types were less well-constrained, the rock types were combined into four domains referred to as Zones A, B, Bx and C; these have now been superseded by the domains in the current model.

Table 7-4. Relationship between kimberltie rock types and 3-D geological domains at Kelvin

Kimberlite unit / subunit	3-D geological domain
KIMB1	KIMB1
KIMB2A	KIMB2A
KIMB2B	KIMB2B
KIMB3A	KIMB3A
KIMB3B	KIMB3B
KIMB3C	KIMB3C
KIMB6	KIMB6
KIMB4 and KIMB7	KIMB4/7
Large country rock xenoliths / in situ wedges	CRX

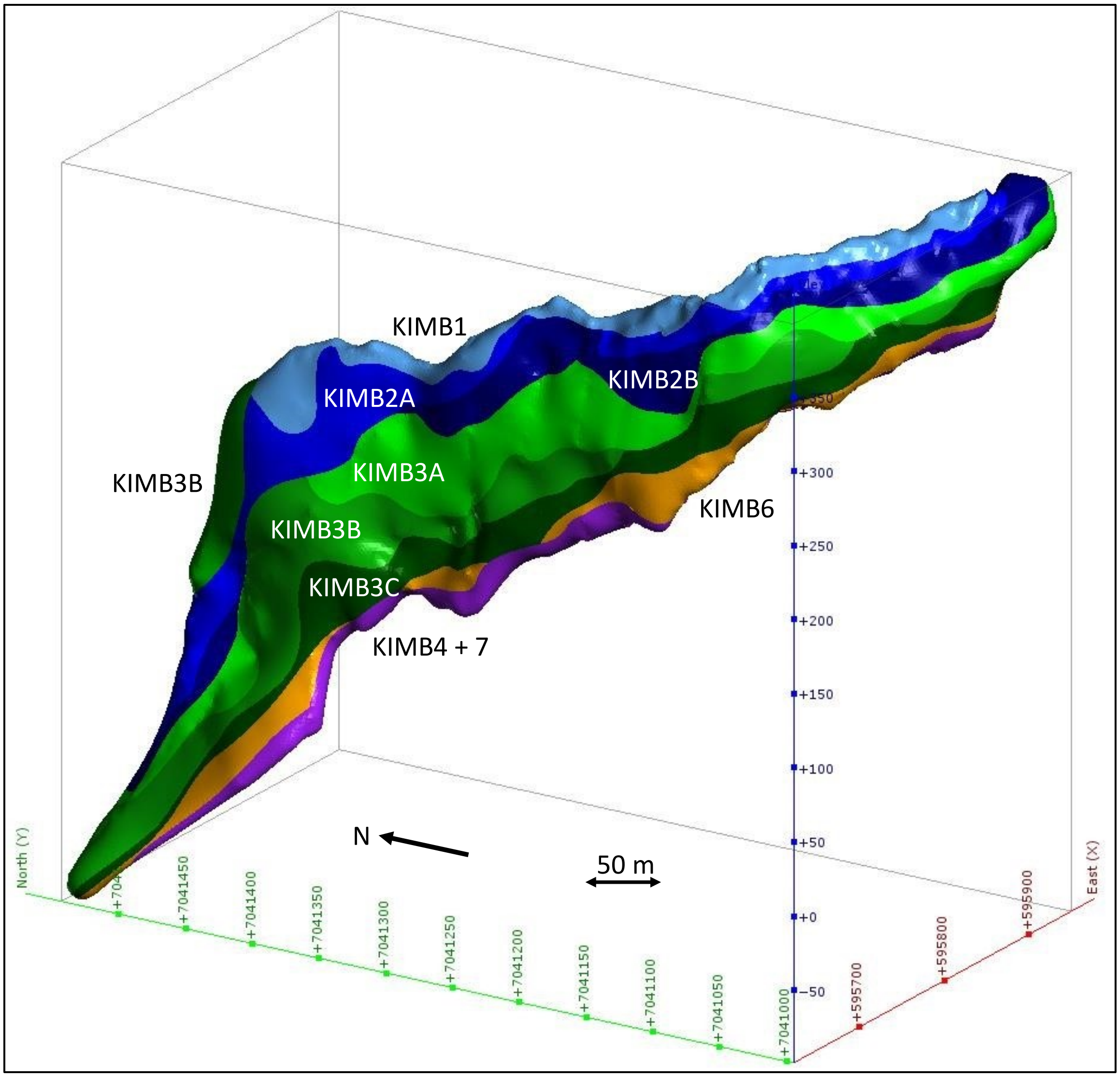

Figure 7-11. Kelvin 3-D model showing the internal geological domains (CRX domain not shown)

7.3.4.3.3 *Drill data constraining Kelvin model*

Extensive drilling, detailed core logging and petrographic work have been used to define the external pipe shell and internal geology model of the Kelvin kimberlite. A total of 195 drill holes providing 384 contact points define the pipe shell; the total number of contact points delineating the kimberlite domains ranges from 164 to 312 (Table 7-5).

Table 7-5. Summary of drill data used to construct the Kelvin pipe shell and internal geology model

	Number of drill holes	Number of drill hole contact points
External pipe shell model	195	384
Geological domains		
KIMB1	83	164
KIMB2A	109	214

KIMB2B	127	253
KIMB3A	159	312
KIMB3B	136	268
KIMB3C	138	267
KIMB6	127	254
KIMB4/7	103	206
CRX	52	132

7.3.5 *Faraday 2 Kimberlite Geology*

This section is modified from industry reports SRK (2016f, h), Hetman and Nelson (2017) and Nelson (2018). Kimberlite descriptions and classifications follow the terminology from Scott-Smith et al. (2013).

7.3.5.1 Faraday 2 kimberlite rock types

The geology of the Faraday 2 kimberlite is based on detailed logging of 91 drill holes, petrographic examination of 295 representative samples from 40 diamond drill holes and 93 representative samples from reverse-circulation chips. The most recent work was completed in August of 2018 based upon an additional 8 drill holes targeted to intersect the NW extension of the Faraday 2 body. Four main kimberlite rock types have been identified: KIMB1 through KIMB4. KIMB1 is volumetrically dominant, comprising over 70% of the body, and is variably altered volcaniclastic kimberlite classified as KPK. Additional minor rock types, KIMB5 and KDYKE-INT, have been identified in the northern area of the pipe. A schematic cross section showing the preliminary idealized internal distribution of the kimberlite rock types is provided in Figure 7-12. The key petrographic features of the rock types are summarized in Table 7-6 and they are described in more detail in Sections 7.3.5.1.1 through 7.3.5.1.7.

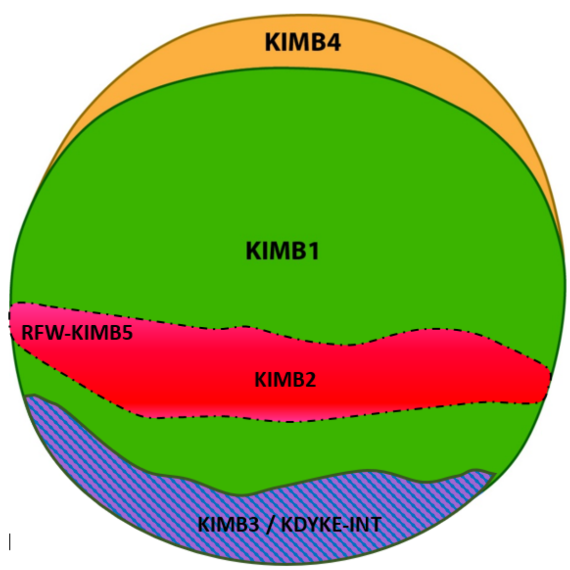

Figure 7-12. Idealized schematic cross-section of kimberlite rock types in Faraday 2

Table 7-6. Key petrographic features of the Faraday 2 kimberlite rock types

Kimberlite Rock Type	KIMB1		KIMB2	KIMB3	KIMB4	KIMB5	KDYKE-INT
	KIMB1A	KIMB1B					
Textural Classification	KPK	KPK	KPK < HKt-HK	HK	KPK	KPKt-HKt	HK
CR Dilution % (visual estimate)	30 – 40	30	5 – 20	5 – 15	70 – 90	15-20	20-Feb
CR Alteration	Fresh to moderately altered by serpentine	Moderately to strongly altered by serpentine and hematite	Strongly altered by serpentine	Moderately to strongly altered by serpentine	Fresh to weakly altered by serpentine, clay, and carbonate	Strongly altered by serpentine. Cpx at edges of xenoliths	Moderately to strongly altered by serpentine with minor hematite
Olivine Total Abundance %	25 – 35	30 – 35	40 – 50	45 – 55	5 – 20	40-50	50-55
OLVm Abundance %	10 – 15	10 – 20	15 – 20	20 – 30	0 – 10	15-20	25-30
OLVm Size Range	f - m + c	f - m + c	f - c + vc	f - c + vc	f - m >> c	f – c + vc	
Olivine Alteration	Completely altered to serpentine	Completely altered to serpentine	Completely altered to serpentine ± minor carbonate	Partly to completely altered to serpentine and carbonate	Completely altered to serpentine with minor clay and carbonate	Completely altered to serpentine	Partly to completely altered to serpentine
Magmaclast Abundance %	20 – 50	25 – 50	0 – 70	0	5 – 10	~50	0
Magmaclast Characteristics	Thin-skinned, pelletal shaped, distinct margins. Some thick melt selvedges. Acicular phl.	Thin-skinned, pelletal shaped, distinct margins. Some thick melt selvedges. Acicular phl.	Thin-skinned, symmetric rims, indistinct margins, segregationary textures	N/A	Thin-skinned, pelletal shaped	Thin-skinned, symmetrical, indistinct margins, stubby phlogopite plates.	N/A
Matrix	Interclast matrix	Interclast matrix	Groundmass > Interclast matrix	Groundmass	Interclast matrix	Interclast matrix/transitional	Groundmass with segregationary texture
Matrix/ Groundmass Composition	Serpentine, ash-sized clastic particles	Serpentine	Serpentine, carbonate ± phlogopite, spinel	Carbonate, phlogopite, serpentine, spinel	Rock flour, serpentine, clay	Serpentine with accessory apatite and cpx	Phlogopite, spinel, carbonate, serpentine
Packing	Matrix to clast supported	Matrix to clast supported	Loosely packed, matrix supported	Loosely packed, matrix supported	Closely packed, clast supported	Loosely to moderately packed	Loosely packed, matrix supported
Sorting	Unsorted, massive and homogeneous	Unsorted, massive and homogeneous	Unsorted	Unsorted, rare flow alignment	Massive and homogeneous to sorted with flow alignment	Unsorted	Flow alignment of olivine
Mantle Indicator Minerals	Rare garnet	Rare garnet	Rare garnet	Rare garnet	Rare garnet, one chrome diopside	Rare garnet	Garnet
Mantle Xenoliths	Very rare	Very rare	Very rare	One observed	One observed	RFW	None
Kimberlite Autoliths	Present	Present	Rare	Very rare	Very rare	RFW	None

7.3.5.1.1 *KIMB 1A*

KIMB1A is a fine to medium and coarse olivine-rich volcaniclastic kimberlite that has been further classified as a Kimberley-type pyroclastic kimberlite (KPK). It is characterized by the presence of thin-skinned pelletal-shaped magmaclasts, an olive-green to brown serpentine matrix and angular fresh to weakly altered country-rock xenoliths. KIMB1A is the dominant pipe infill at Faraday 2.

- **Textural classification:**
  F-m+c grained, matrix to clast supported and massive KPK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 25-35%.
  OLVm range between 10-15%.
- **Magmaclasts:**
  Magmaclasts range between 20-50%
  Thin skinned pelletal-shaped, distinct margins with some thick melt selvages; acicular phlogopite.
- **Groundmass (within melt selvages):**
  Acicular straw-like phlogopite phenocrysts, with spinel and perovskite.
- **Matrix:**
  Interclast matrix is serpentinized, ash-sized clastic particles.
- **Mantle derived indicator minerals:**
  Rare garnet.
- **Country rock xenoliths:**
  Fresh to moderately altered by serpentine.
  Kimberlite autoliths are present.
  Visual dilution averages 30-40%.

7.3.5.1.2 *KIMB 1B (altered equivalent of KIMB 1A)*

KIMB1B is a volcaniclastic kimberlite further classified as a Kimberley-type pyroclastic kimberlite (KPK). The kimberlite has a distinctive blue-green colour due to the serpentinization of the matrix and clastic components. This alteration also enhances the magmaclastic texture of the rock. The nature and distribution of the components in KIMB1B are the same as KIMB1A and contacts between the two units are gradational. KIMB1B is interpreted to be a more intensely-altered version of KIMB1A; both units are considered to be a single phase of kimberlite. Combined, KIMB1A and KIMB1B make up 69% of the kimberlite presently delineated at Faraday 2.

- **Textural classification:**
  F-m+c grained, matrix to clast supported and massive KPK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 30-35%.
  OLVm range between 10-20%.
- **Magmaclasts:**
  Magmaclasts range between 25-50%
  Thin skinned pelletal-shaped, distinct margins with some thick melt selvages; acicular phlogopite.

- **Groundmass (within melt selvages):**
  Acicular straw-like phlogopite phenocrysts, with spinel and perovskite.
- **Matrix:**
  Interclast matrix is intensely serpentinized, ash-sized clastic particles.
- **Mantle derived indicator minerals:**
  Rare garnet.
- **Country rock xenoliths:**
  Moderately to strongly altered by serpentine and hematite.
  Kimberlite autoliths are present.
  Visual dilution averages 30%.

7.3.5.1.3 *KIMB 2*

KIMB2 is classified as a coherent kimberlite as this is the dominant texture. However, the rock is texturally variable with transitional to pyroclastic kimberlite. It is characterized by pale-coloured olivine macrocrysts pseudomorphed by serpentine and serpentinized country rock shards set in a phlogopite groundmass or serpentine matrix. The contact relationship between KIMB1 and KIMB2 suggests that KIMB2 intruded KIMB1, possibly when KIMB1 was still semi-fluid.

- **Textural classification:**
  F-c+vc grained, loosely packed matrix supported and dominated by HK-HKt, with minor KPK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 40-50%. Completely altered to serpentine +/- carbonate.
  OLVm range between 15-20%.
- **Magmaclasts:**
  Magmaclasts range between 0-70%
  Thin skinned, symmetric rims, indistinct margins with segregationary textures.
- **Groundmass (within melt selvages):**
  Mostly serpentine and carbonate +/- phlogopite, spinel.
- **Matrix**
  Groundmass associated with CK dominates over the clastic matrix within the KPK areas.
- **Mantle derived indicator minerals:**
  Rare garnet.
- **Country rock xenoliths:**
  Moderately to strongly altered by serpentine.
  Kimberlite autoliths are rare.
  Visual dilution averages 5-20%.

7.3.5.1.4 *KIMB 3*

KIMB3 is a massive, inequigranular, xenolith-poor, fine to coarse olivine-rich coherent rock classified as a hypabyssal phlogopite kimberlite. It is characterized by yellow-brown to green olivine macrocrysts pseudomorphed by serpentine, strongly altered country rock xenoliths, and common pale green to white serpentine-carbonate veins. KIMB3 occurs at the base of the pipe and is interpreted to be the last phase emplaced. Though superficially different, preliminary petrographic analysis has indicated that KIMB2 and KIMB3 may be variations of a single kimberlite phase; further investigation is required to support this hypothesis.

- **Textural classification:**
  F-c+vc grained, loosely packed matrix supported and classified as CK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 45-55%.
  OLVm range between 20-30%.
  Partly to completely altered to serpentine and carbonate
- **Magmaclasts:**
  There are no magmaclasts.
- **Groundmass:**
  Groundmass comprises carbonate, phlogopite, serpentine and spinel.
- **Mantle derived indicator minerals:**
  Rare garnet.
- **Country rock xenoliths:**
  Moderately to strongly altered by serpentine.
  Kimberlite autoliths are very rare.
  Visual dilution averages 5-15%.

7.3.5.1.5 *KIMB 4*

KIMB4 is classified as a highly diluted volcaniclastic kimberlite. The high proportion of country rock, fine grain size, plus the sorting and flow features support the interpretation that this unit is an early kimberlite phase related to pipe excavation processes.

- **Textural classification:**
  F-m>>c grained, closely packed and clast supported VK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 5-20%.
  OLVm range between 0-10%.
  Completely altered to serpentine with minor clay and carbonate
- **Magmaclasts:**
  5-10% magmaclasts, thin skinned and pelletal shaped.
- **Groundmass (within melt selvages):**
  Groundmass is rock flour, serpentine and clay.
- **Matrix:**
  Massive, homogeneous with flow alignment of ash-sized particles.
- **Mantle derived indicator minerals:**
  Rare garnet and one chrome diopside.
- **Country rock xenoliths:**
  Fresh to weakly altered by serpentine, clay and carbonate.
  Kimberlite autoliths are very rare.
  Visual dilution averages 70-90%.

7.3.5.1.6 *KIMB 5*

KIMB5 is classified as a moderately-diluted transitional textured kimberlite. KIMB5 occurs in-between KIMB2 and KIMB1. It has only been identified in the deepest segment of Faraday 2. KIMB5 may be the same phase, or a member of, KIMB2, based on the similarities between olivine populations, primary mineralogy, indicator minerals and close spatial relationship. It has been divided into a separate unit based its transitional texture, which contrasts with the well-crystallized coherent KIMB2 that occurs in this area of the pipe. Higher in the pipe KIMB2 intervals tend to be narrower with more examples of poorly-crystallized or poorly-preserved groundmass, which are similar in appearance to KIMB5.

- **Textural classification:**
  F-c-vc grained, loosely to moderately packed PK*t-HKt*.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 40-50%.
  OLVm range between 15-20%.
  Completely altered to serpentine.
- **Magmaclasts:**
  50% magmaclasts, thin skinned, indistinct margins, stubby phlogopite plates.
- **Groundmass (within melt selvages):**
  Groundmass is serpentine with accessory apatite and cpx.
- **Matrix:**
  Interclast matrix/transitional, unsorted.
- **Mantle derived indicator minerals:**
  Rare garnet.
- **Country rock xenoliths:**
  Strongly altered by serpentine. Cpx at edges of xenoliths.
  Kimberlite autoliths are assumed rare but RFW.
  Visual dilution averages 15-20%.

7.3.5.1.7 *KDYKE-Internal*

KDYKE-INT and KDYKE-EXT are massive coherent rocks further classified as hypabyssal kimberlites. Specific characteristics of these sheets vary, but in general they are generally massive and uniform, olivine-rich with fine to coarse olivine macrocrysts and generally display well-developed flow alignment. The internal sheets are interpreted to be younger than the pipe.

One KDYKE-INT unit in the deepest portion of the pipe has been modeled as a distinct internal geology unit due to its size. This unit has similarities with KIMB3 in terms of rock texture and composition as well as its location at the base of the pipe. With further work it may be possible to classify this KDYKE-INT unit as KIMB3.

- **Textural classification:**
  F-m-c grained, loosely packed HK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 50-55%.
  OLVm range between 25-30%.
  Partly to completely altered to serpentine.

- **Magmaclasts:**
  No magmaclasts.
- **Groundmass:**
  Groundmass is phlogopite, spinel, carbonate and serpentine.
- **Mantle derived indicator minerals:**
  Garnet.
- **Country rock xenoliths:**
  Moderately to strongly altered by serpentine with minor hematite.
  There are no kimberlite autoliths.
  Visual dilution averages 2-20%.

Internal and external kimberlite sheets are common throughout the Kelvin-Faraday Complex (KFC). Figure 7-13 conceptualizes the possible spatial relationships between the kimberlite sheets at faraday 2.

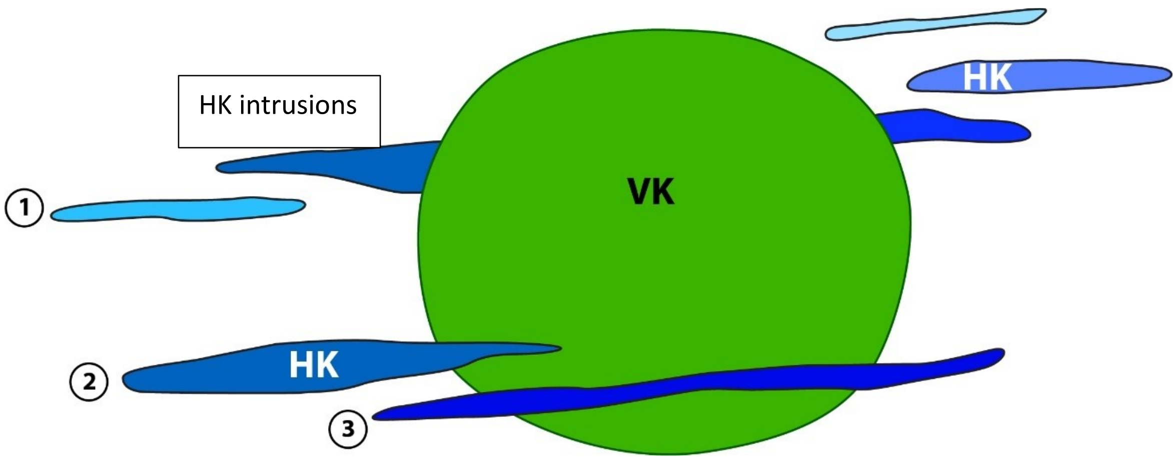

Figure 7-13. Conceptual schematic section of potential spatial and temporal relationships (bodies 1-3) of HK to the Faraday 2 pipe

7.3.5.2 Faraday 2 kimberlite 3-D geological model

The 3-D geological model of the Faraday 2 kimberlite incorporates all drilling and geological/petrographic information to August 2018. The model was constructed by Dr. Ron Uken of SRK using Leapfrog Geo™ software (V3.1.1) together with Lindsay Nelson and reviewed by Casey Hetman. It consists of an external pipe shell model that defines the morphology and extent of the body, and an internal geology model that represents the spatial distribution of the kimberlite rock types infilling the pipe. The current model includes all drilling.

7.3.5.2.1 *External pipe shell model*

The Faraday 2 pipe shell model shown in Figure 7-14 incorporates all of the KPK rock types identified as well as any HK present within the pipe. Any HK considered to represent sheet or irregular intrusions adjacent to or outside the main piep have not been modelled. Faraday 2 is an irregular, variably trending (northwest, west) and variably inclined pipe (dips range from less than 20° to 40°). It has been delineated over 700 m, ranging in width from 20 m to 90 m and in height from 20 m to 60 m.

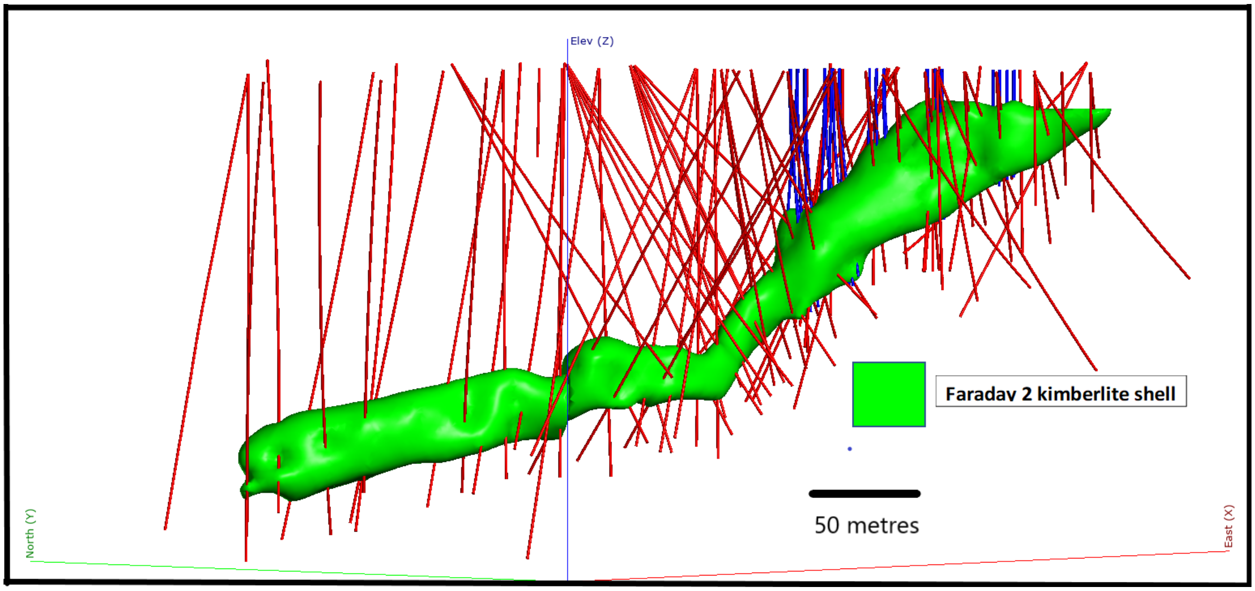

Figure 7-14. Inclined view (looking NE) of the external pipe shell model of the Faraday 2 kimberlite

Notes: Diamond drill hole traces are in red and LDRC drill holes in blue (December 31, 2018).

7.3.5.2.2 *Internal geology model*

The kimberlite rock types described in Section 7.3.5.1 form the basis of the internal geology model which comprises five kimberlite domains, as shown in Table 7-7. Except for the KIMB1, all the domains correspond to a single kimberlite unit. Domain KIMB1 includes KIMB1A and KIMB1B, an altered variety of KIMB1A. The CRX domain represents internal waste rock and includes material interpreted as very large country rock xenoliths (drill intercepts > 1m) and possible rafts or wedges of *in situ* country rock within the pipe shell, where these could be delineated based on available drilling. It should be noted that SRK believes that some of the modelled country rock xenoliths may be continuous with external *in situ* country rock; the models have been created as best possible based on the available drill coverage. Figure 7-15 shows the current 3-D model of the internal geology at Faraday 2.

Table 7-7. Relationship between kimberlite rock types and 3-D geological domains at Faraday 2

Kimberlite rock types	3-D geological domain
KIMB1A, KIMB1B	KIMB1
KIMB2	KIMB2
KIMB3 (incl K-Dyke internal at north end)	KIMB3
KIMB4	KIMB4
KIMB5	KIMB5

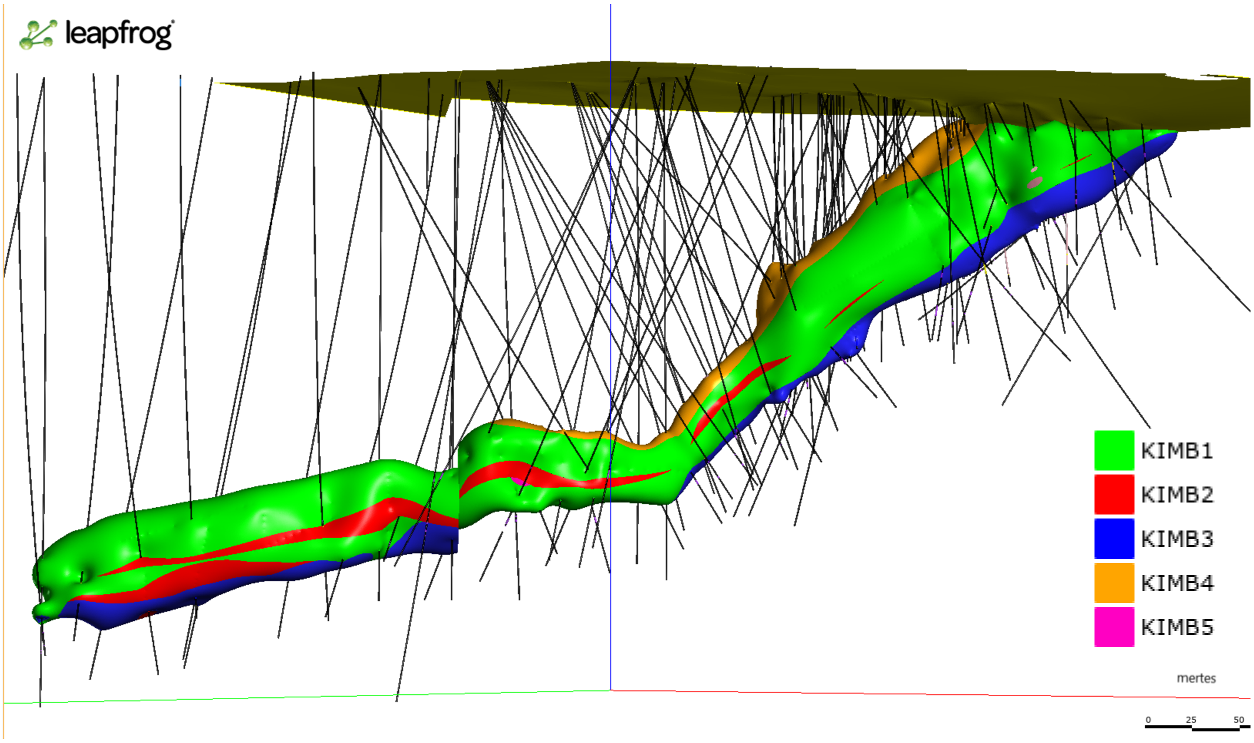

Figure 7-15. Faraday 2 3-D model (looking NE) showing internal geological domains (Uken and Nelson, 2018)

7.3.5.2.3 *Drill data constraining Faraday 2 model*

The drilling, detailed core logging and petrographic work conducted at Faraday 2 to date have supported construction of a pipe shell model defined by 91 drill holes providing 113 contact points, and a preliminary internal geology model, in which the number of contact points delineating individual kimberlite domains ranges from 40 to 126 as shown in Table 7-8.

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Further diamond drilling, drill core examination, microdiamond analysis and reverse circulation drilling and microdiamond analysis will be required to increase confidence above an inferred resource classification.

7.3.6 *Faraday 1-3 Complex – Faraday 3 Lobe Kimberlite Geology*

This section is modified from industry reports SRK (2016e). Kimberlite descriptions and classifications follow the terminology from Scott-Smith et al. (2013) with logging completed by Lindsay Nelson and Dan Gainer of AGL under the supervision of Casey Hetman, P.Geo. of SRK, considered an expert in the geology of kimberlites. Logging was initiated in 2015 and continued in 2016 and 2017. This section is modified from Nelson (2018) - Nelson (2018): Preliminary geology of the Faraday 1 and Faraday 3 Kimberlites, Kennady North Project. The Faraday 1 and Faraday 3 bodies are linked by a high-grade hypabyssal sheet, but it is unclear whether these two pipes share rock types internally. The contact has yet to be identified in the drill core presently available. The kimberlite infilling the bodies is similar but comprise enough differences to support the present interpretation as two distinct lobes. As such, KDI refers to these kimberlites collectively as the Faraday 1-3 kimberlite complex.

7.3.6.1 Faraday 3 Lobe kimberlite rock types

Current understanding of the geology of the Faraday 3 kimberlite is based on logging of 2,977 m of kimberlite core using 62 drill cores and petrographic examination of 163 kimberlite thin sections from 16 of these drill cores, distributed in a representative manner through the body. A total of four main kimberlite rock types have been identified to date: KIMB1 through KIMB4, with KIMB4 subdivided into KIMB4B and KIMB4C based on differences in country rock xenolith content. KIMB4B is the volumetrically dominant rock type and comprises variably diluted KPK. The key petrographic features of the kimberlite rocks infilling the Faraday 3 pipe are summarized in Table 7-9. The rock types are described in more detail in Sections 7.3.6.1.1 through 7.3.6.1.5.

7.3.6.1.1 *KIMB1*

KIMB1 is a fine to coarse and very coarse olivine-rich phlogopite hypabyssal kimberlite. KIMB1 has been modelled as part of the Faraday 3 pipe, however it has similar petrological characteristics to the hypabyssal sheets at Faraday 1 (e.g. F1-KIMB3, KDYKE) and may extend beyond the pipe boundaries as part of the sheet complex.

- **Textural classification:**
  F-m+c grained, dark green, waxy, massive and unsorted HK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 50-60%.
  OLVm comprise 20-25%.
  OLV crystals are anhedral, rounded in shape and completely altered to serpentine with minor carbonate and hematite.
  OLVp are subhedral to euhedral and altered the same as the macrocrysts..
- **Magmaclasts:**
  No magmaclasts.
- **Groundmass:**
  Poorly crystallized groundmass with serpentine, carbonate, phlogopite and spinel.
- **Mantle derived indicator minerals:**
  Common garnets with thin to thick kelyphite rims.
- **Country rock xenoliths:**
  Typically, small rock clasts are strongly altered by serpentine and oxides.
  Visual dilution ranges 10%.

Table 7-8. Summary of key petrographic features of the Faraday 3 kimberlite

Kimberlite Unit	KIMB1	KIMB2	KIMB3	KIMB4		KIMB5	KIMB6	KIMB7
				KIMB4B	KIMB4C			
Textural Classification	HK	KPK	VK	KPK	KPK	KPK	HK	PK
CR Dilution % (visual estimate)	0 – 10	20 – 30	30 – 80	25 - 75	> 75	> 70	15 – 20	30 – 50
CR Alteration	Strong serpentine and hematite alteration	Moderate serpentine and hematite alteration	Fresh to moderately altered by serpentine, hematite, and carbonate	Fresh to weakly altered by serpentine, hematite, and carbonate	Fresh to weakly altered by serpentine, hematite, and carbonate	Fresh to weakly altered by serpentine, clay, and carbonate	Moderate to strong serpentine and hematite alteration	Weak to moderate serpentine alteration
Olivine Total Abundance %	50 – 60	30 – 40	20	5 – 30	5 – 15	15-Oct	40	40
OLVm (>1mm) Abundance %	20 – 25	10 – 20	5 – 10	≤ 5 – 15	≤ 5	5	20	20
OLVm Size Range	f - c + vc	f - m + c	f - m	f - m + c	f - m + c	f - m + c	f – c	f - m + c
Olivine Alteration	Completely altered to serpentine with minor carbonate and hematite	Completely altered to serpentine with minor carbonate and hematite	Completely altered to serpentine with minor carbonate and hematite	Completely altered to serpentine	Completely altered to serpentine	Completely altered to serpentine with minor hematite and clay	Completely altered to serpentine with hematite	Completely altered to black serpentine
Magmaclast Abundance %	0	10 – 20	10 – 20	5 – 20	5 – 10	5 – 10	RFW	75
Magmaclast Characteristics	N/A	Thin-skinned, pelletal shaped, symmetrical, frosted appearance.	Pelletal shapes with super-thin symmetric rims that are sometimes incomplete.	Thin-skinned, pelletal shaped.	Thin-skinned, pelletal shaped.	Thin-skinned, pelletal shaped.	Melt segregations can look like magmaclasts in core.	Thin to thick rims, asymmetric with irregular shapes, high amount of olv.
Matrix	Groundmass	Interclast matrix	Interclast matrix	Interclast matrix	Interclast matrix	Interclast matrix	Groundmass	Matrix
Matrix/ Groundmass Composition	Phlogopite, spinel, carbonate, serpentine	Serpentine and ash-sized particles	Rock flour, serpentine, carbonate	Rock flour, serpentine, clay	Rock flour, serpentine, clay	Rock flour, serpentine, clay	Phlogopite, carbonate, spinel, perovskite	Phlogopite, spinel, carbonate, serpentine
Packing	Matrix supported	Loosely packed and matrix supported	Tightly packed, clast-supported	Moderately to tightly packed, clast-supported	Tightly packed, clast-supported	Clast-supported	Loosely to moderately packed, matrix-supported	Tightly packed
Sorting	Unsorted, massive and homogeneous	Unsorted, massive and homogeneous	Poorly-sorted with weak flow alignment	Massive, inhomogeneous	Massive, generally uniform	Massive, minor weak flow alignment	Massive	Massive
Mantle Indicator Minerals	Common garnet	Rare garnet	None	Rare garnet	Very rare garnet	Very rare garnet	None	Garnet
Mantle Xenoliths	Rare	None	None	None	One observed	One observed	None	None
Kimberlite Autoliths	None	Very Rare	None	Common	Present	Rare	Present	Common

7.3.6.1.2 *KIMB2*

KIMB2 is a volcaniclastic kimberlite that is further classified as a Kimberley-type pyroclastic kimberlite. It is a minor unit found in the upper portion of the pipe. KIMB2 is similar to examples of KIMB4 with lower dilution.

- **Textural classification:**
  F-m+c grained, massive, homogeneous, olivine-rich pyroclastic kimberlite classified as KPK.
- **Olivine population:**
  Visual estimate of OLV modal abundance is 40% but ranges between 25-50%.
  OLVm range between 5-20%. Macrocrysts are anhedral with round shapes and altered to serpentine with minor carbonate and hematite.
  OLVp are euhedral to anhedral in shape and completely altered to serpentine.
- **Magmaclasts:**
  Magmaclasts range between 10-20%
  Thin skinned pelletal-shaped with complete and symmetrical margins. Selvedges are light-coloured and frosted.
- **Groundmass (within melt selvages):**
  Loosely packed and matrix supported with translucent brown-green serpentine.
- **Matrix:**
  Matrix comprises translucent brown-green serpentine with ash-sized particles.
- **Matrix:**
  Rare orange, purple and pink garnets with kelphytic rims.
- **Country rock xenoliths:**
  Moderately to strongly altered to serpentine and hematite.
  Two < 10 mm coherent kimberlite autoliths were described. OLV-rich and closely-packed OLVp.
  Visual dilution averages 20-30%.

7.3.6.1.3 *KIMB 3*

KIMB3 is a massive, weakly sorted, highly-diluted volcaniclastic kimberlite. It has not been classified as a Kimberley-type pyroclastic kimberlite due to the sorting and flow features that are present. KIMB3 is similar to the marginal breccias found at Faraday 1 and 3 but with a higher proportion of juvenile material. KIMB3 is interpreted to represent a zone of flow or gas escape structure.

- **Textural classification:**
  F-grained, pale green-grey, rough, sandy surface texture and weakly sorted volcaniclastic kimberlite (VK)
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 10-50% but commonly 20%.
  OLVm comprise 10% and are f-m grained and anhedral in shape.
  OLVm are completely altered by serpentine with minor carbonate and hematite.
  OLVp are subhedral and completely replaced by serpentine.
- **Magmaclasts:**
  Magmaclasts range between 10-20%. They have pelletal shapes and super thin symmetric rims – sometimes incomplete.
  Thin skinned, symmetric rims, indistinct margins with segregationary textures.
- **Groundmass (within melt selvages):**

Closely-packed and clast supported.

- **Matrix:**
  Interclast matrix is serpentine and carbonate with ash-sized particles.
- **Country rock xenoliths:**
  Xenoliths are mostly locally-derived gneiss. <5 mm shards are common as green-grey fragments of country rock.
  Visual dilution is moderate to high, 30-80%.
  Biotite xenocrysts are flow-aligned in some samples. Also, xenocrysts of black biotite and white feldspar.

7.3.6.1.4 *KIMB 4B*

KIMB4B is classified as a massive, moderately to highly diluted Kimberley-type pyroclastic kimberlite. KIMB4B is a sub-unit of the KIMB4 phase, which is subdivided based on country rock dilution. KIMB4 is the main pipe infill at Faraday 3 and represents the major pipe-forming emplacement event.

- **Textural classification:**
  F-m+c grained, light to medium green, massive, moderately to highly diluted KPK.
  Rock is massive but not classified as "uniform" and "homogeneous" due to fluctuations in the proportions of country rock and Juvenile components.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 10-30%.
  OLVm are f-c grained and comprise 5-15%. Macrocrysts are anhedral and completely altered to grey-green serpentine.
  OLVp are subhedral to anhedral and completely altered to serpentine.
- **Magmaclasts:**
  Magmaclastic, with thin-skinned pelletal shaped clasts cored by olivine and country rock shards.
  Thickness of melt selvedges increase with depth.
  Magmaclasts range between 5-20%.
- **Groundmass (within melt selvages):**
  Loosely packed and clast-supported to close packed and clast-supported.
- **Matrix:**
  Interclast matrix of serpentine and clay.
- **Mantle derived indicator minerals:**
  Rare red and pink garnets with kelyphitic rims.
- **Country rock xenoliths:**
  Fresh to weakly altered to appear bleached. Alteration is serpentine with lesser carbonate, hematite and clay.
  Coherent kimberlite autoliths are common and generally olivine-rich.
  Visual dilution averages 25-75% with most intervals at 50-70%.

7.3.6.1.5 *KIMB 4C*

KIMB4C is classified as a massive, highly diluted Kimberley-type pyroclastic kimberlite. KIMB4C is a sub-unit of the KIMB4 phase, which is subdivided based on country rock dilution. KIMB4 is the main pipe infill at Faraday 3 and represents the major pipe-forming emplacement event.

- **Textural classification:**
  F-m+c grained, light green, massive, uniform and highly diluted KPK.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 5-15%.
  OLVm comprise 5%, are f-c grained, anhedral in shape and completely altered to grey-green serpentine.
  OLVp are subhedral to anhedral and completely altered to serpentine.
- **Magmaclasts:**
  Very difficult to discern but commonly 5-10%
  Magmaclastic with selvages around olivine and some country rock shards with rare uncored magmaclasts.
- **Groundmass (within melt selvages):**
  Close-packed and clast-supported groundmass is rock flour and serpentine.
- **Matrix:**
  Interclast matrix of serpentine and pulverized country rock.
- **Mantle derived indicator minerals:**
  Very rare pink and red garnets with kelyphitic rims.
- **Country rock xenoliths:**
  Blocky and angular shapes, fresh to weakly altered to a bleached appearance by serpentine, carbonate, hematite and clay.
  Common to see large, >1 m blocks of country rock.
  Kimberlite autoliths present in half of the intervals and are olivine-rich.
  Visual dilution averages > 75%.

7.3.6.1.6 *KIMB 5*

KIMB5 is a volcaniclastic rock petrographically similar to KIMB4B and KIMB4C but is not considered part of the main pipe zone due to its spatial distribution. The relationship of KIMB5 to the main pipe is currently poorly understood (intersected in only 17 holes) and further work is required.

- **Textural classification:**
  F-m+c grained, poorly preserved, massive, light green, magmaclastic and classified as a pyroclastic kimberlite.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 5-40% but generally between 10-15%.
  OLVm no abundance noted.
  OLVm are f-c grained olivine macrocrysts replaced by serpentine and fresh to weakly altered country rock xenoliths.
- **Magmaclasts:**
  Consist of melt selvages around olivine crystals and country rock shards and are thin-skinned and pelletal-shaped.
- **Groundmass (within melt selvages):**
  Serpentine, phlogopite and spinel.
- **Matrix:**
  Interclast matrix of serpentine and pulverized country rock.
- **Mantle derived indicator minerals:**
  Rare pink and red garnets.
- **Country rock xenoliths:**

Blocky and angular shapes, fresh to weakly altered to a bleached appearance by serpentine, carbonate, hematite and clay.
Common to see large, >1 m blocks of country rock.
Visual dilution averages >70%.

7.3.6.1.7 *KIMB 6*

KIMB6 is textually complex and appears volcaniclastic in core. After petrographic examination, it has been established that KIMB6 is a hypabyssal phlogopite kimberlite dominated by carbonate melt segregations, giving the appearance of possible magmaclasts in core. The phase relationships between KIMB6 and the other kimberlite units have not been established due to the limited amount of KIMB6 that has been encountered and therefore requires further work (RFW).

- **Textural classification:**
  Very F-c grained, medium blue-green colour, massive and matrix-supported hypabyssal phlogopite kimberlite.
- **Olivine population:**
  Visual estimate of OLV modal abundance at 40%.
  OLVm abundance is 20% and they are conspicuous black-coloured olivine macorcrysts.
  Partly to completely altered to serpentine.
- **Magmaclasts:**
  No magmaclasts.
- **Groundmass:**
  Comprised of phlogopite, carbonate, spinel and perovskite.
- **Mantle derived indicator minerals:**
  Garnet.
- **Country rock xenoliths:**
  2-20 mm sized gneiss clasts that are extensively serpentine and hematite altered with rare diabase fragments.
  Visual dilution is 20%.

7.3.6.1.8 *KIMB 7*

KIMB7 is a minor unit external to the pipe. It was identified in one hole, KDI-16-020, based on its distinct texture. KIMB7 is classified as a phlogopite-carbonate PK.

- **Textural classification:**
  Dark brown, massive, loosely-packed and clast-supported phlogopite-carbonate pyroclastic kimberlite.
- **Olivine population:**
  Visual estimate of OLV modal abundance at 40%.
  OLVm abundance is 20% and are completely replaced by serpentine.
- **Magmaclasts:**
  Distinctive thick and irregularly shaped magmaclasts.
- **Groundmass (within melt selvages):**
  Phlogopite, carbonate, spinel and perovskite.
- **Matrix:**
  Matrix-supported serpentine and carbonate.
- **Mantle derived indicator minerals:**

Rare peridotitic garnets with thin kelyphite rims.

- **Country rock xenoliths:**
  Angular and weakly serpentinized gneiss and rare diabase.
  Visual dilution is 30-50%.
  Coherent kimberlite autoliths are common containing tightly-packed fine- to medium-grained olivine in well-formed phlogopite groundmass.

7.3.6.2 Faraday 3 Lobe kimberlite 3-D geological model

The 3-D geological model of the Faraday 3 kimberlite incorporates all drilling and geological/petrographic information to June 28, 2018. The model was constructed by Mike Diering of SRK using Leapfrog Geo™ software (V3.1.1). It consists of an external pipe shell model that defines the morphology and extent of the body, and an internal geology model that represents the spatial distribution of the kimberlite units infilling the pipe. The model remains preliminary as further drilling, detailed logging and petrographic work are required to increase confidence in the pipe morphology and the character and distribution of internal units. The current model will be used to guide ongoing evaluation at Faraday 3 in the future.

7.3.6.2.1 *External pipe shell model*

The Faraday 3 pipe shell model shown in Figure 7-16 incorporates all of the hypabyssal, pyroclastic and volcaniclastic kimberlite units interpreted as pipe infills. Any kimberlite considered to occur external to the pipe has not been modelled. Faraday 3 is an irregular inclined pipe that dips at 30° to the northwest. It is flatter and wider than Faraday 2 and Kelvin, ranging in width from 40 to 150 m and in height from 20 to 50 m. It extends over approximately 350 m and is open at depth.

Figure 7-16 shows the diamond drill hole traces in red and the LDRC drill holes in blue. Internal geology and external morphology of the Faraday 3 pipe has been determined from the intersection points from all drill holes.

7.3.6.2.2 *Internal geology model*

The main kimberlite units described in Section 7.3.6.1 above form the basis of a preliminary internal geology model comprised of six geological domains, five of which are kimberlite domains, as shown in Table 7-10. Three of the domains correspond to single kimberlite rocks: KIMB1, KIMB2 and KIMB3. The two KIMB4 rock types have been modelled as individual domains (KIMB4B and KIMB4C). The CRX domain represents internal waste rock and includes material interpreted as very large country rock xenoliths (drill intercepts > 1m) and possible rafts or wedges of *in situ* country rock within the pipe shell, where these

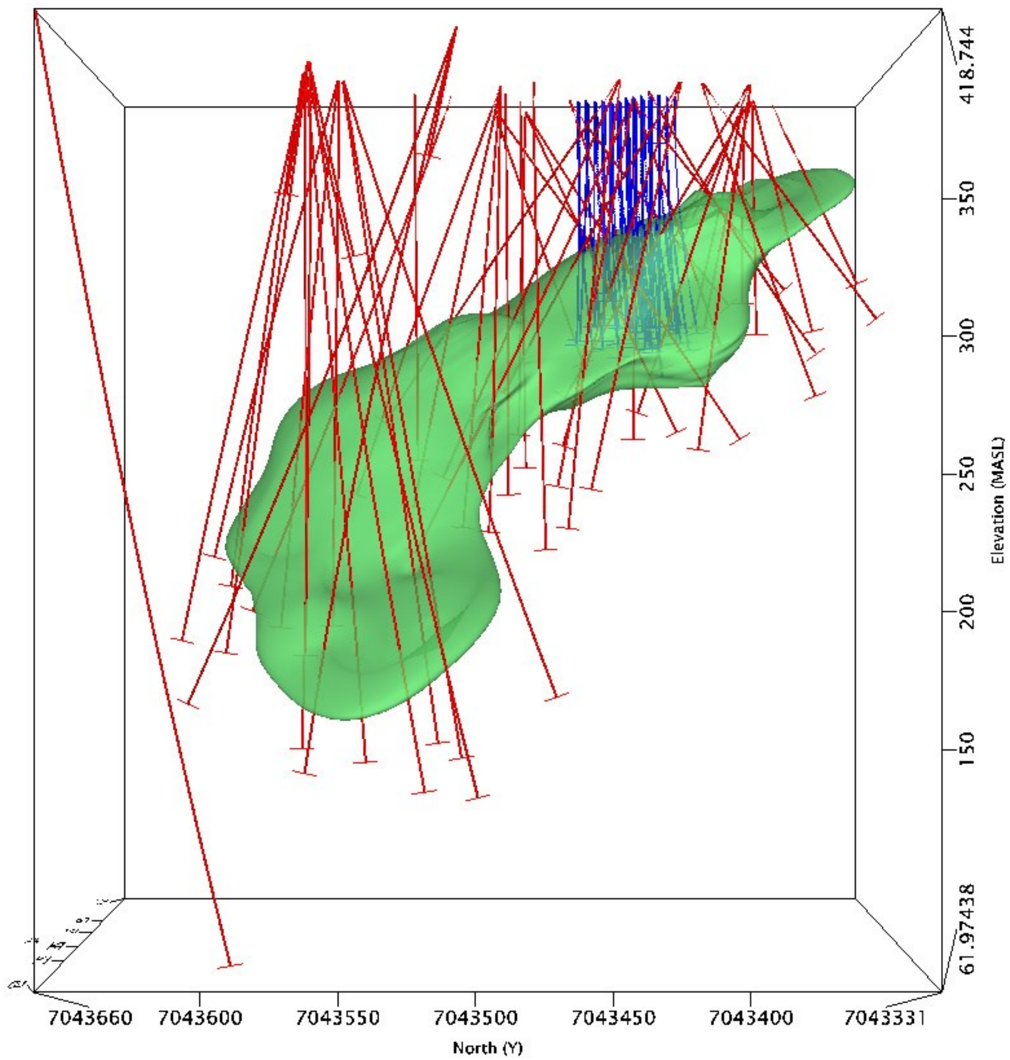

Figure 7-16. Inclined view (looking SE) - external pipe shell model of the Faraday 3 Lobe kimberlite (Uken & Nelson, 2018)

Notes: Diamond drill hole traces are in red and LDRC drill holes in blue (as at June 2017).

could be delineated based on available drilling. It should be noted that SRK believes that some of the modelled country rock xenoliths may be continuous with external *in situ* country rock; these have been modelled as more continuous and flatter solids sharing an equivalent orientation to the pipe shell. Figure 7-17 shows the current 3-D model of the internal geology at Faraday 3.

Table 7-9. Relationship between kimberlite rock types and 3-D geological domains at Faraday 3

Kimberlite unit/subunit	3-D geological domain
KIMB1	KIMB1

KIMB2	KIMB2
KIMB3	KIMB3
KIMB4B	KIMB4B
KIMB4C	KIMB4C
Large country rock xenoliths / in situ wedges	CRX

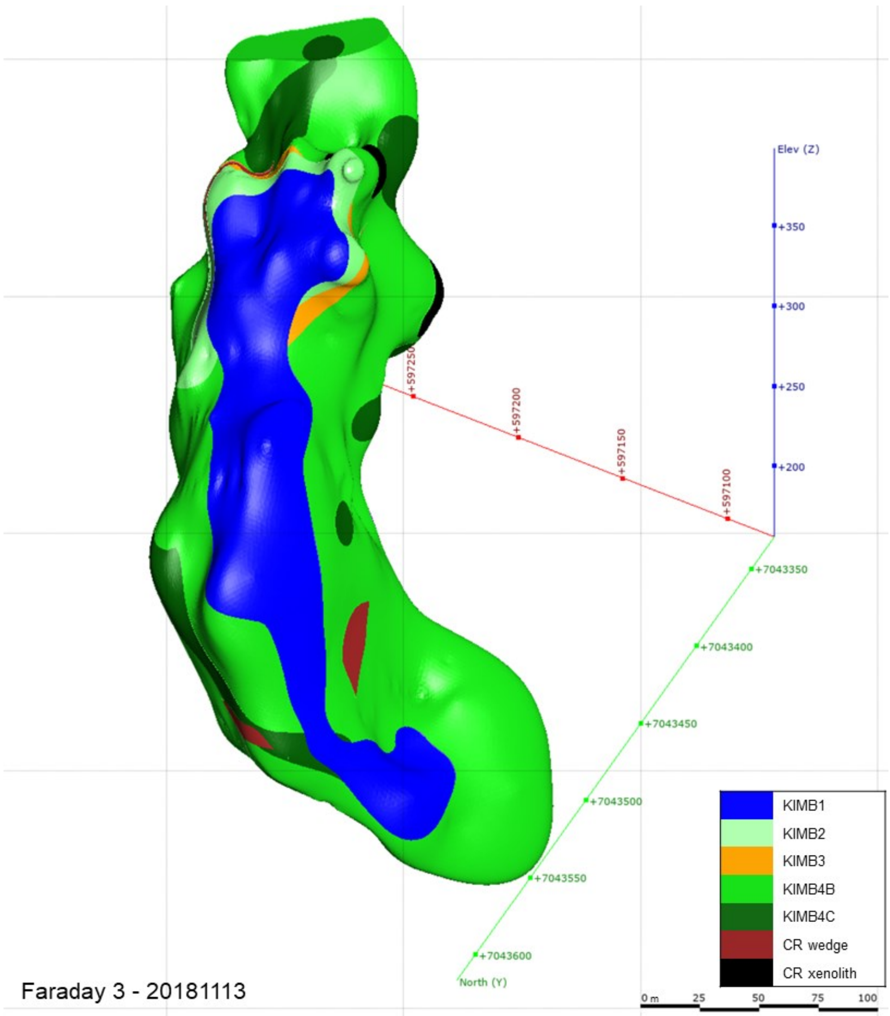

Figure 7-17. Faraday 3, 3-D model (looking SE) showing the internal geological domains (Uken & Nelson,2018)

7.3.6.2.3 *Drill data constraining Faraday 3 Lobe model*

The drilling, core logging and petrographic work conducted at Faraday 3 to date have supported the construction of a pipe shell model defined by 44 drill holes providing 90 contact points, and a preliminary internal geology model, in which the number of contact points delineating individual kimberlite domains ranges from 14 to 84 as shown in Table 7.11.

Table 7-10. Summary of drill data to construct Faraday 3 Lobe pipe shell and internal geological model (Nov 2018)

Model Name	Number of drill holes	Number of drill hole contact points
External Pipe Shell	44	90
Geological domains		
KIMB1	16	32
KIMB2	10	20
KIMB3	7	14
KIMB4B	42	84
KIMB4C	24	48
CRX	27	82

Further diamond drilling, drill core examination, microdiamond analysis and reverse circulation drilling and microdiamond analysis will be required to increase confidence above an inferred resource classification.

7.3.7 *Faraday 1-3 Complex – Faraday 1 Lobe Kimberlite Geology*

This section is summarized from industry report SRK (2016j) and Nelson (2018): Preliminary geology of the Faraday 1 and Faraday 3 Kimberlites, Kennady North Project. Kimberlite descriptions and classifications follow the terminology from Scott-Smith et al. (2013). Logging of drill cores was completed by Lindsay Nelson and Dan Gainer of AGL under the supervision of Casey Hetman, P.Geo. of SRK, considered an expert in the geology of kimberlites. Logging was initiated in 2015 and continued in 2016 and 2017. This section is modified from Nelson (2018).

Faraday 1 is associated with a series of en-echelon kimberlite sheets of variable thicknesses. The general geometry of Faraday 1 is similar to the Faraday 2, 3 and Kelvin kimberlites. It is an irregular, tube-shaped body that dips 25-30° to the northwest and is currently defined as being much smaller than the other kimberlites along the KFC trend, ranging 30 to 60 m in width and 10 to 20 m in height over approximately 200 m. Faraday 1 is infilled with volcaniclastic kimberlite (KPK) but is associated with significant amounts of hypabyssal kimberlite. The proportion of marginal breccia versus other kimberlite material is also higher than that documented in the other kimberlites. The small size of the volcaniclastic body, complex spatial relationship between units and nature of the units suggest that Faraday 1 is a less mature volcanic system than Faraday 2, 3 or Kelvin.

7.3.7.1 <u>Faraday 1 Lobe kimberlite rock types</u>

The preliminary geology model of Faraday 1 was produced in 2015 and updated in early 2018 (Nelson, 2018). The Faraday 1 geology and petrographic work completed to-date consists of the logging of 42 drill holes and investigation of 137 kimberlite thin sections and 54 country rock and marginal breccia thin sections collected from 20 drill holes across the length of the body. A summary of the petrographic characteristics of kimberlite rock types is provided in Table 7-13.

Table 7-11. Summary petrographic characteristics of kimberlite rock types at Faraday 1 Lobe

Kimberlite Rock Type	KIMB1	KIMB1x	KIMB2	KIMB3	KIMB4	KIMB5	KDYKE
Textural Classification	KPK	KPK	HK	HK	KPK	CKt-PK	HK
CR Dilution % (visual estimate)	30 – 60	60 – 90	0 – 10	0 – 5	20 – 35	20 – 30	< 10
CR Alteration	Fresh to moderately altered by serpentine, hematite and clay	Fresh to moderately altered by serpentine, hematite and clay	Strongly altered to serpentine with hematite and carbonate	Strongly altered to serpentine with hematite and minor carbonate	Moderately to strongly altered by serpentine, clay, hematite and carbonate	Moderately to strongly altered by serpentine, hematite and carbonate	Strongly altered to serpentine with hematite and carbonate
Olivine Total Abundance %	20 – 30	15 – 20	30 – 60	45 – 60	25 – 45	30 – 50	45 – 50
OLVm (> 1mm) Abundance %	10	< 5 – 10	10 – 20	15 – 35	0 – 10	10 – 20	15 – 20
OLVm Size Range	f - m + c	f - m + c	f - c + vc	f - c + vc	f - m + c	f – c	f – c + vc
Olivine Alteration	Completely altered to serpentine	Completely altered to serpentine	Completely altered to serpentine ± minor carbonate and hematite	Completely altered to serpentine ± minor carbonate and hematite	Completely altered to serpentine with minor hematite and carbonate	Completely altered to serpentine	Completely altered to serpentine ± minor carbonate and hematite
Magmaclast Abundance %	25 – 75	10 – 30	0	0	5 – 60	25 – 75	0
Magmaclast Characteristics	Thin-skinned, pelletal shaped, distinct margins. Some thick melt selvedges. Acicular phl.	Thin-skinned, pelletal shaped, distinct margins. Some thick melt selvedges. Acicular phl.	N/A	N/A	Thin-skinned, pelletal shaped, uniform rims with fine groundmass.	Thin-skinned, pelletal shapes, indistinct margins	N/A
Matrix	Interclast matrix	Interclast matrix	Groundmass	Groundmass	Interclast matrix	Transitional	Groundmass
Matrix/ Groundmass Composition	Serpentine, ash-sized clastic particles	Serpentine, ash-sized clastic particles	Serpentine, carbonate ± phlogopite, spinel	Phlogopite, spinel, serpentine, carbonate	Serpentine, clay	Serpentine, phlogopite and spinel	Phlogopite, spinel, carbonate, serpentine
Packing	Matrix to clast supported	Clast supported	Loosely packed, matrix-supported	Loosely packed, matrix-supported	Matrix-supported	Loosely to moderately packed	Loosely packed, matrix-supported
Sorting	Unsorted, massive and homogeneous	Unsorted, inhomogeneous	Unsorted, massive and homogeneous	Unsorted, rare flow alignment	Massive unsorted, rare weak flow alignment	Massive and unsorted	Massive with weak flow alignment of olivine
Mantle Indicator Minerals	Rare garnet	Rare garnet	Rare garnet	Common garnet	Common garnet	Common garnet	Rare garnet
Mantle Xenoliths	Very rare	Very rare	One observed	Rare	One observed	One observed	None
Kimberlite Autoliths	Present	Present	Present	RFW – possible	Rare	Common	None

A detailed description of the rock types for the infill of the Faraday 1 kimberlite pipe occur in subsections 7.3.7.1.1 to 7.3.7.1.7.

7.3.7.1.1 *KIMB1*

KIMB1 is a fine to medium and coarse olivine-rich volcaniclastic kimberlite that has been further classified as a Kimberley-type pyroclastic kimberlite (KPK). It is characterized by the presence of thin-skinned pelletal-shaped magmaclasts, an olive-green to brown serpentine matrix and angular country-rock xenoliths. KIMB1 is the dominant phase infilling the central pipe at Faraday 1.

- **Textural classification:**
  F-m+c grained, olivine-rich, massive, unsorted, matrix- to clast-supported volcaniclastic kimberlite
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 20-30%.
  OLVm comprise 10%.
  OLVm are anhedral, rounded in shape and completely altered to serpentine with minor broken crystals present.
  OLVp are subhedral with round shapes and altered to serpentine with some broken phenocrysts.
- **Magmaclasts:**
  Highly variable abundance ranging 25-75%. Magmaclastic with thin-skinned pelletal-shaped magmaclasts.
- **Groundmass (within melt selvages):**
  Poorly crystallized groundmass with serpentine, carbonate, phlogopite and spinel.
- **Matrix:**
  Interclast matrix is composed of translucent serpentine and very fine clastic material.
- **Mantle derived indicator minerals:**
  Rare, 1-4 mm sized, red, pink and orange garnets with thin to thick kelyphitic rims. Mantle xenoliths are very rare, highly altered and include garnet peridotites.
- **Country rock xenoliths:**
  Typically, small rock clasts are strongly altered by serpentine and oxides.
  Visual dilution ranges between 20-70% but mostly between 30-60%.
  Autoliths of CK are common, 5 cm in size, are round, olivine-rich with phlogopite groundmass.

7.3.7.1.2 *KIMB 1x*

KIMB1x is a volcaniclastic kimberlite further classified as a Kimberley-type pyroclastic kimberlite (KPK). The kimberlite unit is interpreted to be a highly-diluted version of KIMB1, occurring at the upper contact of the central pipe in Faraday 1. KIMB1x occurs as a mixture of KIMB1 and marginal breccia where these units are in contact, and as small (less than 50 cm) intervals of moderately-diluted KIMB1 separated by large blocks of country rock that may be in-situ.

- **Textural classification:**
  F-m+c grained, pale grey-green, massive, unsorted, clast-supported Kimberley-type pyroclastic kimberlite.
- **Olivine population:**

Olivine poor, vf-m grained with visual estimate of OLV modal abundance ranges between 5-30%.
OLVm comprise 3-20%.
OLVm are anhedral, round and completely altered to serpentine with minor broken crystals.
OLVp are subhedral with round shapes and altered to serpentine with some broken phenocrysts.

- **Magmaclasts:**
  Highly variable abundance ranging 10-75%. Magmaclastic with thin-skinned pelletal-shaped magmaclasts which are cored and uncored.
- **Groundmass (within melt selvages):**
  Poorly crystallized groundmass with serpentine, carbonate, phlogopite and spinel.
- **Matrix:**
  Interclast matrix is composed of serpentine and clay with very fine pulverized rock flour.
- **Mantle derived indicator minerals:**
  Rare, red and pink garnets with thin to thick kelyphitic rims. One mantle xenolith observed.
- **Country rock xenoliths:**
  Typically, comprise locally derived gneiss, are angular to sub-angular.
  CRX's are fresh to moderately altered by serpentine, hematite, clay and minor carbonate.
  Size of CRX's vary widely from sub-millimetre to larger than one metre.
  Visual dilution ranges between 20-90% with the lower range representing large country blocks.
  One mantle xenolith observed.
  Autoliths of CK are rare and olivine-rich with phlogopite groundmass.

7.3.7.1.3 *KIMB 2*

KIMB2 is classified as an extensively altered hypabyssal kimberlite (HK). It is characterized by pale-coloured olivine macrocrysts pseudomorphed by serpentine and serpentinized country rock xenoliths and coherent kimberlite autoliths set in a serpentine-altered groundmass. Examples of KIMB2 can look similar in appearance to both KDYKE material and KIMB5; KIMB2 may be related to the hypabyssal sheet material at the base of the pipe.

- **Textural classification:**
  Vf-vc grained, light green-grey to blue-green in colour, massive, unsorted, inequigranular olivine-rich hypabyssal kimberlite
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 30-60% but typically <40%.
  OLVm comprise 10%.
  OLVm are anhedral, white to pale green and completely altered to serpentine with minor carbonate and hematite.
  OLVp are euhedral to anhedral and completely altered to serpentine with minor broken phenocrysts.
- **Magmaclasts:**
  None.
- **Groundmass:**
  Poorly preserved and altered to serpentine, carbonate +/- spinel.
- **Mantle derived indicator minerals:**
  Rare, 1-6 mm sized, red, pink and orange garnets with thin to thick kelyphitic rims.
  Completely kelyphitized garnets are present and one chrome diopside was observed.

Mantle xenoliths are very rare – one 3 cm garnet peridotite.

- **Country rock xenoliths:**
  Typically, small metasedimentary clasts, < 5 cm, are strongly altered to serpentine with ematite and occasional carbonate.
  Visual dilution ranges between 0-10%.
  Autoliths of CK are common and are olivine-rich.

7.3.7.1.4 *KIMB 3*

KIMB3 is a massive, inequigranular, xenolith-poor, fine to coarse and very coarse olivine-rich coherent rock classified as a hypabyssal kimberlite. It is characterized by light to dark green olivine macrocrysts pseudomorphed by serpentine, strongly altered country rock xenoliths, and common pale green to white serpentine-carbonate veins. KIMB3 is interpreted to be part of the hypabyssal sheet complex at Faraday 1 and very similar to KDYKE1.

- **Textural classification:**
  F-m-c+vc grained, dark green with fine white carbonate-serpentine veining, massive, unsorted, olivine rich coherent kimberlite
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 45-60% but typically 50%.
  OLVm comprise 15-35%.
  OLVm are fine to coarse to very coarse grains, anhedral and completely replaced by serpentine with minor carbonate and hematite.
  OLVp are subhedral to anhedral and completely altered to serpentine.
- **Magmaclasts:**
  Typically, are absent but were observed in one drill hole.
- **Groundmass (within melt selvages):**
  Crystalline groundmass with serpentine, phlogopite spinel and carbonate.
- **Mantle derived indicator minerals:**
  Conspicuous red, pink garnets throughout KIMB 3.
  Mantle xenoliths are very rare – one 1.5 cm garnet peridotite and one sheared 2.5 cm peridotite.
- **Country rock xenoliths:**
  Dominantly, locally-derived gneiss and strongly altered to serpentine with hematite and minor carbonate.
  Visual dilution ranges between < 5%.
  Autoliths are extremely rare and one CK autolith was observed.

7.3.7.1.5 *KIMB 4*

KIMB4 is a moderately-diluted volcaniclastic kimberlite further classified as a Kimberley-type pyroclastic kimberlite. Some examples of KIMB4 are too altered to apply this higher-level classification. The relationship between KIMB4 and the other kimberlite phases has not been established. However, KIMB4 and KIMB3 are possibly related based on the olivine populations, indicator minerals, and nature of the contacts between the two units.

- **Textural classification:**

F-m grained, pale greyish- green, massive and unsorted volcaniclastic kimberlite

- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 25-45%.
  OLVm – not available.
  OLVm are fine to medium to coarse grains, anhedral and completely altered to serpentine with minor carbonate and hematite.
  OLVp are subhedral and completely altered to serpentine.
- **Magmaclasts:**
  Highly variable between 5-60%. Thin-skinned, pelletal-shaped clasts cored by olivine and country rock shards. Melt selvedges are thein with a uniform width.
- **Groundmass (within melt selvages):**
  Very fine groundmass serpentine and clay
- **Matrix:**
  Matrix-supported, weak flow alignment.
- **Mantle derived indicator minerals:**
  Conspicuous red, pink garnets with thin to thick reaction rims. One 6 mm orange garnet.
  One mantle xenolith observed – 1 cm serpentine-altered olivine with red garnet.
- **Country rock xenoliths:**
  CRX's are blocky and sub-angular and strongly altered to serpentine and less carbonate, hematite and clay.
  Visual dilution is 30% but abundance decreases with depth.
  Small CK autoliths may be present.

7.3.7.1.6 *KIMB 5*

KIMB5 is classified as a texturally-variable phlogopite kimberlite (KPK*t* – HK*t*), with textures ranging from coherent to pyroclastic. It is a minor unit, located at the base of the central pipe towards its northwest end. KIMB5 is characterized by its strong alteration and high degree of variation in terms of texture and country rock dilution. The phase relationships between KIMB5 and the other kimberlite units have not been established. More coherent examples of KIMB5 share features with KIMB2, and both rock types look similar in core. However, both units are characterized by strong alteration and macroscopic features making it difficult to compare them.

- **Textural classification:**
  F-c grained, grey-green to brown-green, massive, unsorted and olivine-rich transitional to volcaniclastic kimberlite.
- **Olivine population:**
  Visual estimate of OLV modal abundance ranges between 30-50%.
  OLVm are fine to coarse crystals, anhedral and completely altered to milky, pale-green serpentine.
  OLVp are subhedral to euhedral and completely altered to serpentine.
- **Magmaclasts:**
  Highly variable between 25-75%. Not all units are magmaclastic.
- **Groundmass (within melt selvages and coherent intervals):**
  Poorly developed phlogopite-spinel groundmass in some intervals.
- **Matrix:**
  Serpentine matrix.
- **Mantle derived indicator minerals:**

Conspicuous red, pink garnets are common but not abundant.
One 5 mm mantle-derived microxenolith xenolith od orthopyroxene and garnet.

- **Country rock xenoliths:**
  CRX's are moderately to strongly altered by serpentine, carbonate and hematite providing a pale blue-green colour and irregular margins with reaction haloes in the surrounding matrix.
  Visual dilution is 20-30% but ranges from 5-40%.
  Olivine-rich coherent kimberlite autoliths are common, usually 1-5 cm.

7.3.7.1.7 *F1-KDYKE*

The KDYKE unit is a low dilution, olivine-rich coherent phlogopite kimberlite that is further classified as a hypabyssal kimberlite sheet. It is part of the set of shallowly-dipping HK sheets that are part of the Faraday 1-3 kimberlite complex.

- **Textural classification:**
  F-m-c grained, medium to dark green, massive, unsorted and olivine-rich hypabyssal kimberlite.
- **Olivine population:**
  Visual estimate of OLV modal abundance is 50%.
  OLVm – not available.
  OLVm are fine to coarse to very coarse-grained, anhedral and completely altered to green serpentine with hematite and minor carbonate.
  OLVp are subhedral to euhedral and completely altered to serpentine.
- **Magmaclasts:**
  No magmaclasts.
- **Groundmass:**
  Homogeneous crystalline groundmass with serpentine, carbonate, phlogopite and spinel.
- **Mantle derived indicator minerals:**
  Rare garnet.
- **Country rock xenoliths:**
  CRX's are strongly altered by serpentine and hematite with red-black or green-black colours.
  Visual dilution is < 10%.
  No kimberlite autoliths.

7.3.7.2 Faraday 1 3-D Geological Model

The current Faraday 1 3-D geological model was produced in June of 2017 and incorporates all diamond drilling up to the end of 2016, the four large-diameter RC holes completed in 2017, and all petrographic information. The model was constructed using Leapfrog ™Geo software by Mike Diering of SRK. Faraday 1 comprises a central pipe containing multiple kimberlite units and external kimberlite bodies that were modeled as discrete solids (Figure 7-18). The external shaped of the faraday 1 pipe has been established by 72 pierce points.

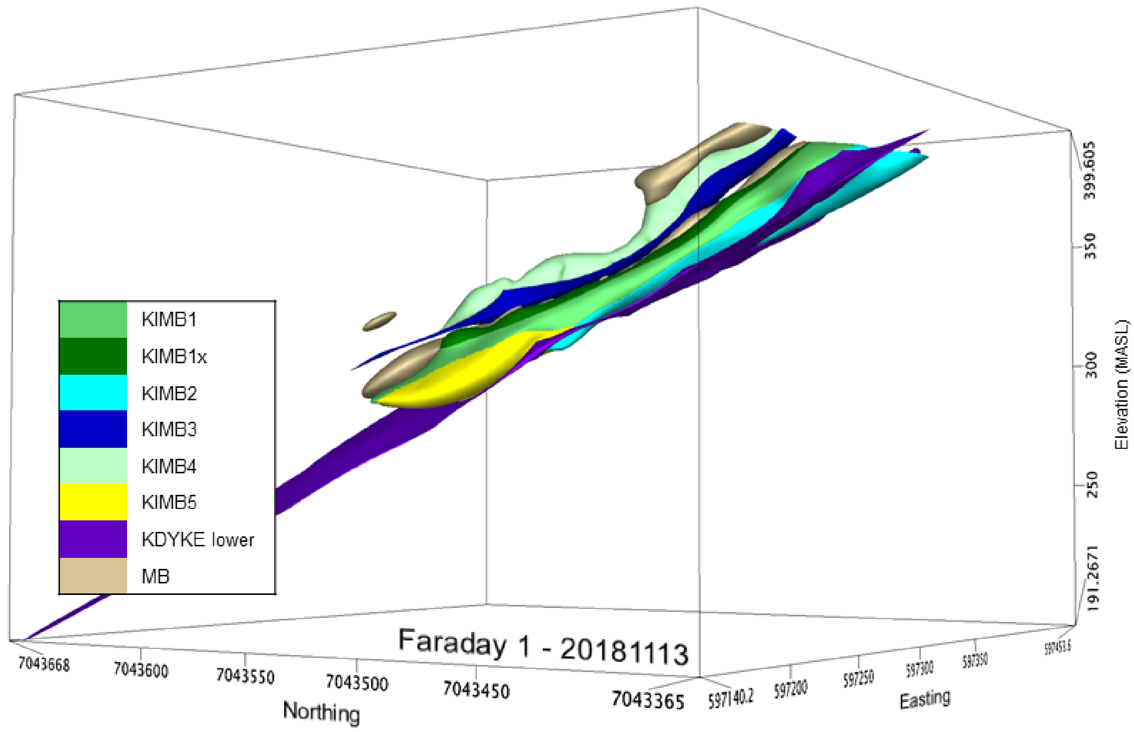

Figure 7-18. 3-D Geological Model of the Faraday 1 Lobe Kimberlite looking NE (Uken & Nelson, 2018)

7.3.7.2.1 *Faraday 1 Lobe Model Kimberlite Domains*

Various kimberlite units both internal and external to the pipe shell have been identified and subsequently modelled within the Faraday 1 kimberlite geology model. Each modeled domain represents a single kimberlite unit. The quantity of drilling data used to constrain the Faraday 1 geology model is listed in Table 7-13.

Table 7-12. Summary of drill data used to define the Faraday 1 Lobe pipe shell and internal domains

Model Name	# of Diamond Drill holes Used	# of Large Diameter RC Drill holes Used	# of Drill hole Contact Points
External Pipe Shell	32	4	72
CRX	12	1	38
Domains			
KIMB1	31	4	70
KIMB1x	10	0	20
KIMB2	8	2	20
KIMB3	19	4	46
KIMB4	5	4	18
KIMB5	6	0	12
KDYKE Lower	37	4	82

Extensive diamond drilling, drill core examination, petrography, groundmass spinel compositions and microdiamond analysis combined with reverse circulation drilling and macrodiamond analysis will be required to increase confidence above a target for further exploration (TFFE).

It is likely that the Faraday 1 and Faraday 3 bodies are linked by a high-grade hypabyssal sheet, but it is unclear whether these two pipes share rock types internally. The contact has yet to be identified in the drill core presently available. The kimberlite infilling the bodies is similar but comprise enough differences to support the present interpretation as two distinct lobes. As such these lobes are collectively referred to as the Faraday 1-3 kimberlite complex. Figure 7-19 shows the comparison of the 2017 and 2018 pipe shell models.

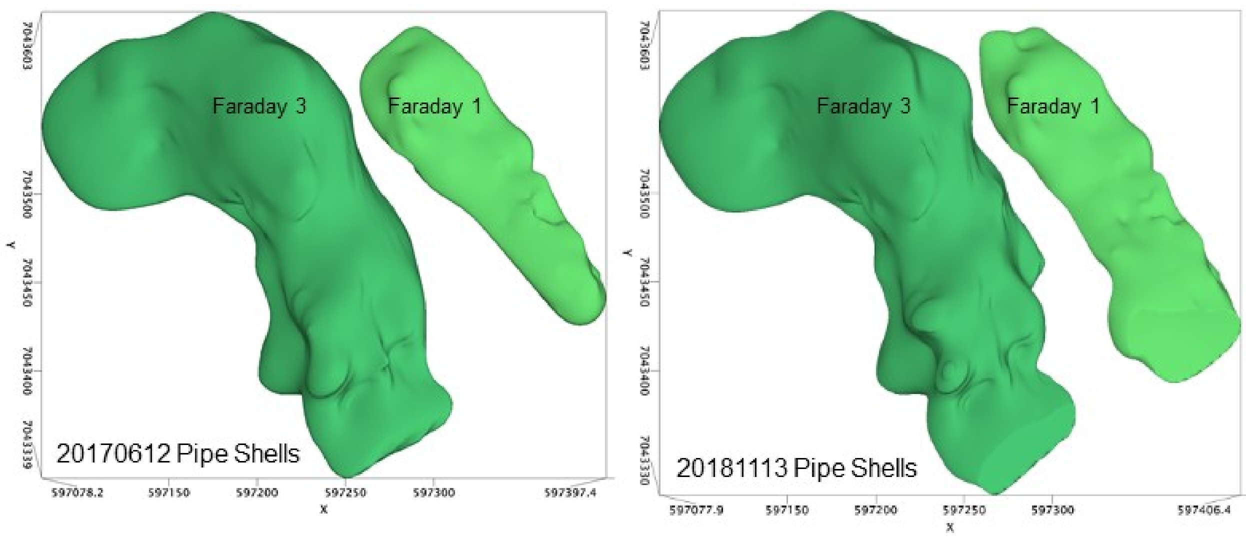

Figure 7-19. Faraday 1-3 complex, comparison of 2017 and 2018 pipe shell models (Uken and Nelson, 2018).

7.3.8 *Quaternary*

The area has been glaciated repeatedly during the Pleistocene Epoch. Most recently, the Laurentide ice sheet covered the area and began to recede about 18,000 years before present (B.P.) The Kennady Lake area was ice-free between 9,000-9,500 years B.P. (Dyke and Prest, 1987). Investigations of glacial stratigraphy have not resulted in preserved evidence of any earlier glacial advances. Glacial drift forms a thin veneer in the area and consists of unstratified till blankets with glaciofluvial outwash deposits.

Till veneers allow only a few bedrock outcrops; but abundant frost boils have brought materials to surface through cryoturbation, where material can be sampled for Kimberlite Indicator Minerals (KIM). The glacial till is predominantly basal or lodgement till associated with the base of the ice sheets, therefore KIM dispersal distances are minimal. Sand and reworked glacial till deposits are classified as outwash. There are some eskers in the area. There are also proglacial sediments consisting of glaciofluvial and glaciolacustrine deposits.

7.3.9 *Metamorphic and Structural Geology*

All areas have been subjected to upper-amphibolite metamorphic conditions, with anatectic melts contributing to a migmatitic texture throughout much of the metaturbidite sequence. Two sillimanite-grade metamorphic pulses are recognized; one corresponds to the typical pan-Slave event at ca. 2.6 Ga and the other is atypical and probably occurred about 15 – 20 my later. A single foliation related to the younger metamorphic peak is evident in most outcrops and can be demonstrated to transpose all earlier fabrics. Recognition of Archean faults is hindered due to the late metamorphic recrystallization. Proterozoic dykes of the Fletcher and Mackenzie swarms and of two other anomalous events are recognized. A small-volume alkaline intrusion of uncertain age was discovered in the MZ area.

Brittle Paleoproterozoic faulting is particularly evident in the granitoid terrains due to introduction of hematite and quartz and destruction of magnetite. The regional-scale east-northeast striking Fletcher Fault transects two of the mapped areas and is interpreted to be a ca. 2.2 Ga extensional feature reactivated at ca. 1.8 Ga as a dextral fault. Three regional sets of joints are recognized; subvertical joints are interpreted to primarily reflect the ca. 2.2 Ga event whereas a subhorizontal set is ascribed to recent glacial retreat and unloading. Potential correlations between principal structures and kimberlite occurrences were not identified.

The granite-gneiss terrane of the area has been intruded by diabase dykes. Granite intrusions tend to be bordered by gneisses that have been regionally metamorphosed by the intrusions. In the eastern portion of the area granitoid-gneiss terrane gives way to metasediments typical of the turbidite sequences observed elsewhere in the Slave (Yellowknife Supergroup). Complex, tight folding and shearing has affected these mudstones and greywackes. Minor volcaniclastic lithologies are also present (Thurston, 2003).

There are several groups of “demagnetized” lineaments with weak to negative magnetic responses. They could be either dykes or country rock that has been demagnetized along fault or shear zones. They are classified as: i) regular, pervasive northeast-trending set, ii) regular, pervasive northwest-trending set, and iii) east-west trending set.

The northeast-trending lineaments lie parallel to the orientation of the ca. 2.0-1.8 Ga Great Slave Lake Shear Zone (Hoffman, 1987) to the south. Younger, second-order structures trend primarily northwest and may be related to the rifting event that emplaced the Mackenzie dyke swarm (1270 Ma; LeCheminant and Heaman, 1989).

7.4 MINERALIZATION

Substantial work has been undertaken on the Kennady North property since 2012. Prior to 2012, five (5) diamond-bearing kimberlites had been identified. These five kimberlites in chronological order of identification are: Doyle in 1996, Faraday in 1999, Kelvin and Hobbes in 2000 and the MZ in 2001. Although the primary mode of emplacement was originally considered to be sheets (dykes), volcaniclastic (pyroclastic) kimberlite had been identified (Hetman, 2000) which resulted in the interpretation of potential blows or small kimberlite pipes occurring along the kimberlite sheets. This identification of pyroclastic kimberlite material and an incomplete understanding of the airborne and ground geophysical survey results, enticed MPV to engage in more detailed exploration along the Kelvin-Faraday Corridor (KFC) and formed KDI, a 100% owned affiliate of MPV.

The kimberlites in the KFC area are portions of the deep roots of an intrusive kimberlitic complex, consisting of volcaniclastic kimberlite and less common hypabyssal kimberlite as well as transitional kimberlite (Bezzola and Hetman, 2015). There are numerous interconnecting dykes. The geometry of the intrusive bodies is complex.

The complex structure and geometry are a reflection of a combination of their Cambrian age (Heaman *et al*., 2003) and the extent of the erosional processes on the Slave craton over the past 500 Ma since emplacement, exposing the deeper subsurface roots of these volcanic systems. This has produced a deep cross-section of the original kimberlite intrusions, which are now further masked by lake basins and glacial sediments.

Over the past 7 years, much diamond drilling has been undertaken to obtain sample material for caustic fusion analyses for microdiamonds to characterize the Kelvin, Faraday 2, Faraday 3, Faraday 1 and Hobbes kimberlites within the KFC. Over 2,100 tonnes of kimberlite has been removed using large diameter reverse circulation drilling. This extensive exploration has delineated the kimberlite bodies that host diamond mineralization and has provided sufficient constraints on their volumes and bulk density, as well as the grade and value of diamonds present, to support the declaration of Mineral Resources (see Executive Summary – Table 1-1).

A summary of all KDI drilling since 2012, including total kimberlite intersected on the Kennady North property, is summarized below in Table 7-14.

Table 7-13. Diamond Drilling Summary including kimberlite intersected- Kennady North Property

Diamond Drilling Summary at Dec 31, 2018 - Kennady North Property				
	# of Holes	**NQ meters**	**HQ meters**	**Total kimberlite drilled (m)**
Doyle Sill	4	942	0	5
Exploration	22	3618	0	0
Faraday 1-3	105	16298	1720	2190
Faraday 2	91	9899	9061	2396
Faraday Area	27	3725	0	74.53
Hobbes	17	1400	0	124
Kelvin Pipe	176	16104	24233	12708
Kelvin Sheet	37	5590	766	166
MZ Sill	14	3704	0	35
Totals	**493**	**61280**	**35780**	**17698**

8 DEPOSIT TYPES

The Kelvin, Faraday 2 and 1-3 kimberlites are infilled with typical HK to KPK rock types as described from other KPK systems worldwide. The Kelvin and Faraday kimberlites are characterized by unconventional, irregular shaped, subhorizontal kimberlite pipe morphologies. The inclined morphology of these pipes has yet to be recognized anywhere else in the world. These kimberlites are similar with respect to textures, primary mineralogy, grade and age, but not in external morphology, to the Gahcho Kué kimberlite cluster at Kennady Lake (Hetman et al., 2004).

The Kelvin and Faraday 2 and 3 kimberlites are dominated by volcaniclastic kimberlite and lesser amounts of hypabyssal kimberlite. There are variable transitional kimberlite units between these two end members which infill the Kelvin and Faraday 2 and 3 pipe-like bodies. Faraday 1 is dominated by hypabyssal kimberlite.

The emplacement model for the Kelvin and Faraday kimberlites is analogous to well documented models of formation and emplacement in KPK systems. The same emplacement processes are inferred here with the exception of the development of inclined, rather than vertical, pipes. This conceptual model is proposed in Figures 8-1a and 8-1b. Figure 8-1a shows the schematic geology of an eroded KPK-type pipe in Canada. Inclining this model at 20-30°dip would schematically represent the geology as documented within the Kelvin and Faraday kimberlites (Figure 8-1b).

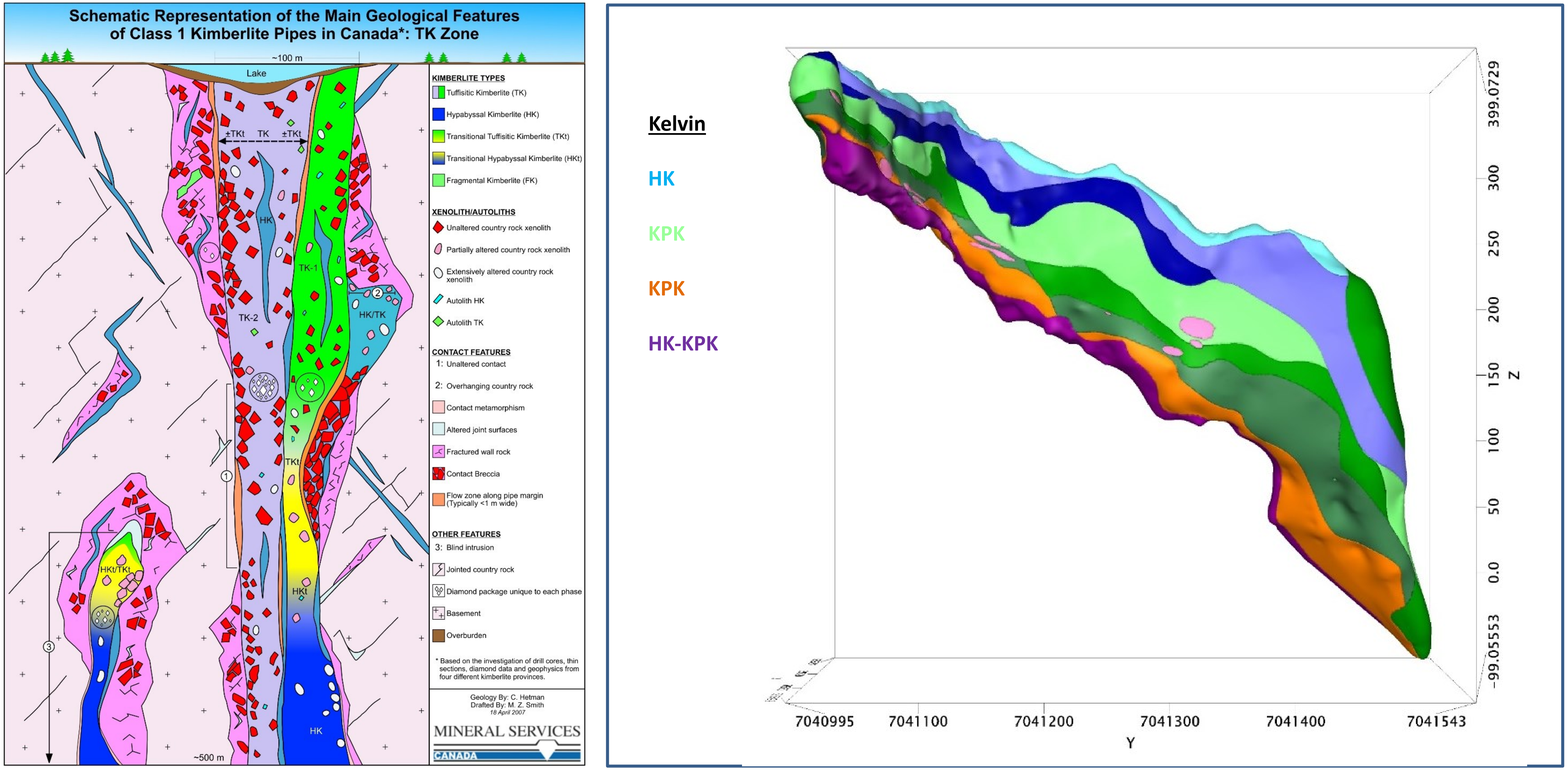

Figure 8.1a Schematic representation of an eroded KPK infilled pipe (infilled with TK or now KPK, Hetman, 2008) versus the 3-D model of Kelvin

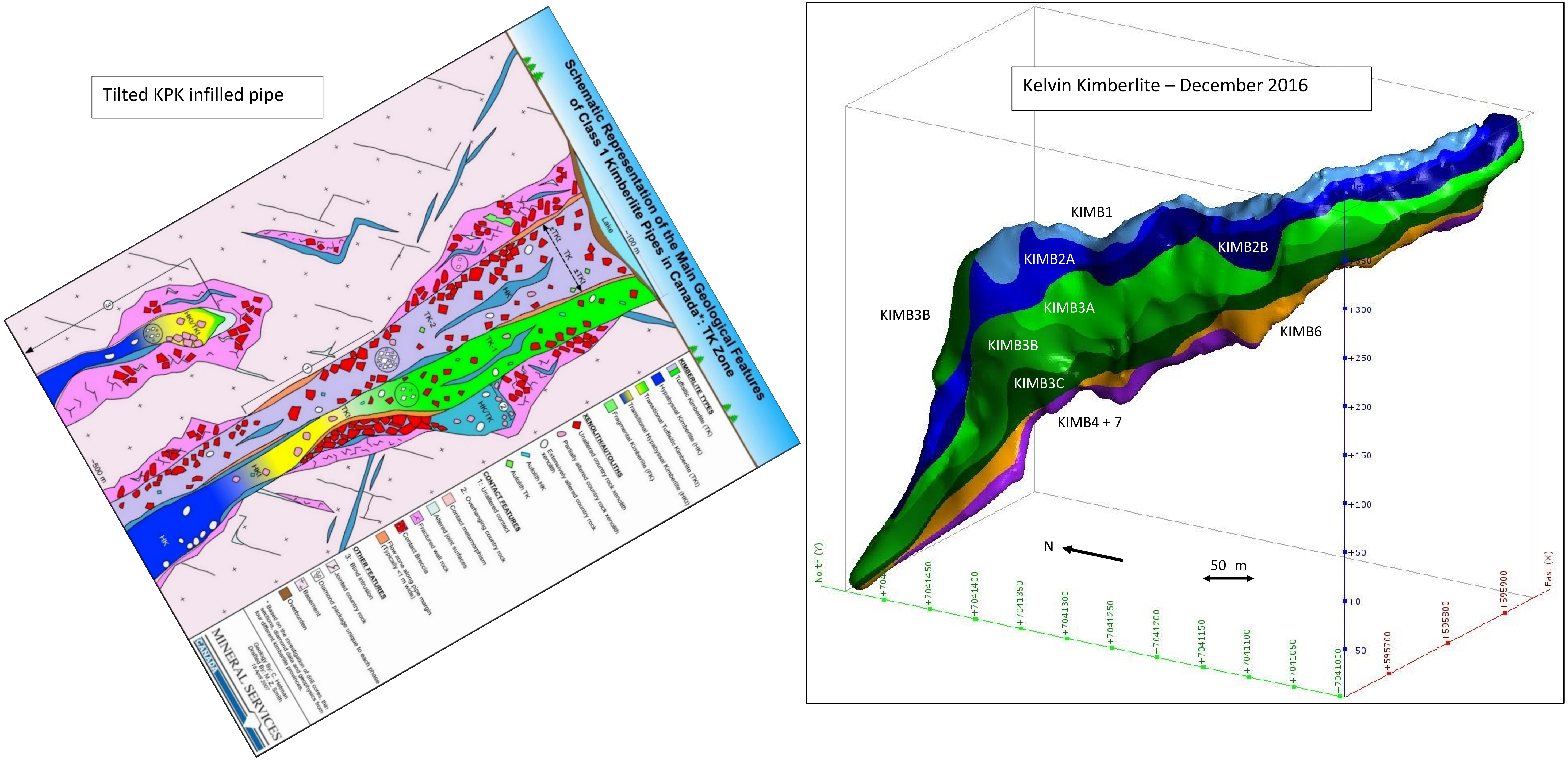

Figure 8.1b Conceptual Model of the Kelvin kimberlite (right) in relation to a conventional KPK infilled pipe (left).

9 EXPLORATION

9.1 EXPLORATION 2018

9.1.1 *Introduction*

Significant exploration has been completed by KDI on the Kennady North project since 2011. This information is documented within two NI 43-101 reports; the first titled "2016 Technical Report – Project Exploration Update and Maiden Mineral Resource Estimate, Kennady North Project, Northwest Territories, Canada", and the second titled "2017 Technical Report - Project Exploration and Faraday Inferred Mineral Resource Update, Kennady North Project, Northwest Territories, Canada", filed on Sedar (January 23, 2017 and November 17, 2017, respectively). This section is modified from the work completed by Dave Sacco at Palmer Environmental Consulting Group Inc. Mr. Sacco produced two internal reports: the first 2018a titled "Surficial Geology and Till Sampling Suitability at Kennady North, Northwest Territories"; and the second 2018b titled "Evaluation of kimberlite indicator minerals in surface sediments on the Kennady North Claims, Northwest Territories" (internal reports for Kennady Diamonds Inc.).

The 2018 exploration program was limited to the completion of a surficial geology and till suitability analysis and a follow-up kimberlite indicator mineral analysis which was completed by Palmer Environmental Consulting Group Inc. ("Palmer"). These analyses were used to improve the use of kimberlite indicator mineral dispersals to locate additional kimberlite. The complex data compilation of all information gathered historically from other stakeholders but also the work completed by KDI since 2011 is on-going. Diamond drilling was also completed during 2018 which will be discussed under Section 10.

The field work component of the Palmer study was completed during the late summer of 2017 while the till suitability evaluation was completed by April 2018 and the kimberlite indicator mineral dispersion targeting was completed in late November of 2018.

9.1.2 *Background*

The Kennady North project is largely affected by westward-flowing ice controlled by the Keewatin Ice Divide (Aylesworth and Shilts, 1989). Most of the till in the area was deposited during this advance. The till transport history is relatively simple but the surface exploration on the property is complicated by post-depositional modification of the till affecting the KIM dispersal trains and the remobilized sediments.

The Palmer study was completed in two phases. The first phase was an evaluation leading to a refined understanding of the distribution of surficial materials and the geomorphological processes that affect indicator mineral concentrations in till, using higher-resolution data than was available to previous workers. The second phase used the initial detailed framework of surficial mapping to improve the identification and delineation of kimberlite indicator mineral dispersals in the surface sediments to derive additional exploration targets.

9.2 Surficial Geology and Till Sampling Suitability

9.2.1 *Background to Surficial Geology Analysis*

The Kennady North property comprises approximately 811 km^2. Surficial geology maps were produced at a scale of 1:10,000 to identify the distribution of sediments and landforms that would subsequently inform the till sampling suitability maps (TSS). The evaluation of the surficial geology was completed using high-resolution orthophotography (0.25m) and LiDAR (3 points/m^2) acquired in July of 2014. Stereo-mates were generated orthophotographically using a pixel shift of 0.325, and mapping was completed using DAT/EM Systems International Summit™3D mapping software in conjunction with Esri ArcGIS.

Palmer established polygons using the most recent and standardized surficial mapping protocols from the Geological Survey of Canada (Cocking et al., 2016). Up to two surficial materials were identified in each polygon as a primary or secondary material or in stratigraphic relation to each other. Polygons were symbolized on the primary material. Sub-glacial macroform ice-flow indicators (drumlins, crag and tails, fluted bedrock or drift) were shown using lines oriented with the feature and proportional to its length and are categorized as subglacial landforms. Meltwater features, like eskers, and meltwater channels were symbolized with a single centerline. Paleo-flow directions were included if they could be determined. Larger meltwater corridors are indicated by glaciofluvial materials in conjunction with overlays that indicate reworking of sediments. Point symbols were used to identify specific landforms such as kames, kettle holes, ice-wedge polygons or thermo-karst subsidence.

Field investigations were required to calibrate the remote surficial interpretations (Figure 9-1) prior to the desktop study. Detailed and visual observations were made to calibrate the study. Material composition and genesis information was gathered to focus data related to post-depositional modification. Striation measurements were collected wherever possible to determine the local ice-flow histories.

9.2.2 *Background to Till Sampling Suitability*

Till sampling suitability (TSS) maps will aid in the design, execution and interpretation of till sampling programs by identifying areas with high potential for in-situ subglacial till suitable for mineralogical or geochemical analysis. Subglacial till is the best representation of bedrock, its transport history can be determined using the local ice-flow history and it produces a geochemical signature that is more areally extensive than the bedrock source.

Till sampling suitability was derived from the 1:10,000-scale surficial geology interpretations and the rating definitions are specific to the Kennady North property (Table 9-1). Surficial units and their associated geomorphological processes are categorized into six TSS ratings based upon the spatial and genetic association of subglacial till with other surficial materials, their depositional environments and post-deformational modification. Low TSS ratings do not mean suitable till does not exist and there is no guarantee that a high TSS rating means all material is suitable for sampling. In polygons identified with a Low TSS rating, suitable till could be found using a small portable reverse circulation drill that can sample material to depth. Table 9-1 provides the till sampling suitability classification for the project area.

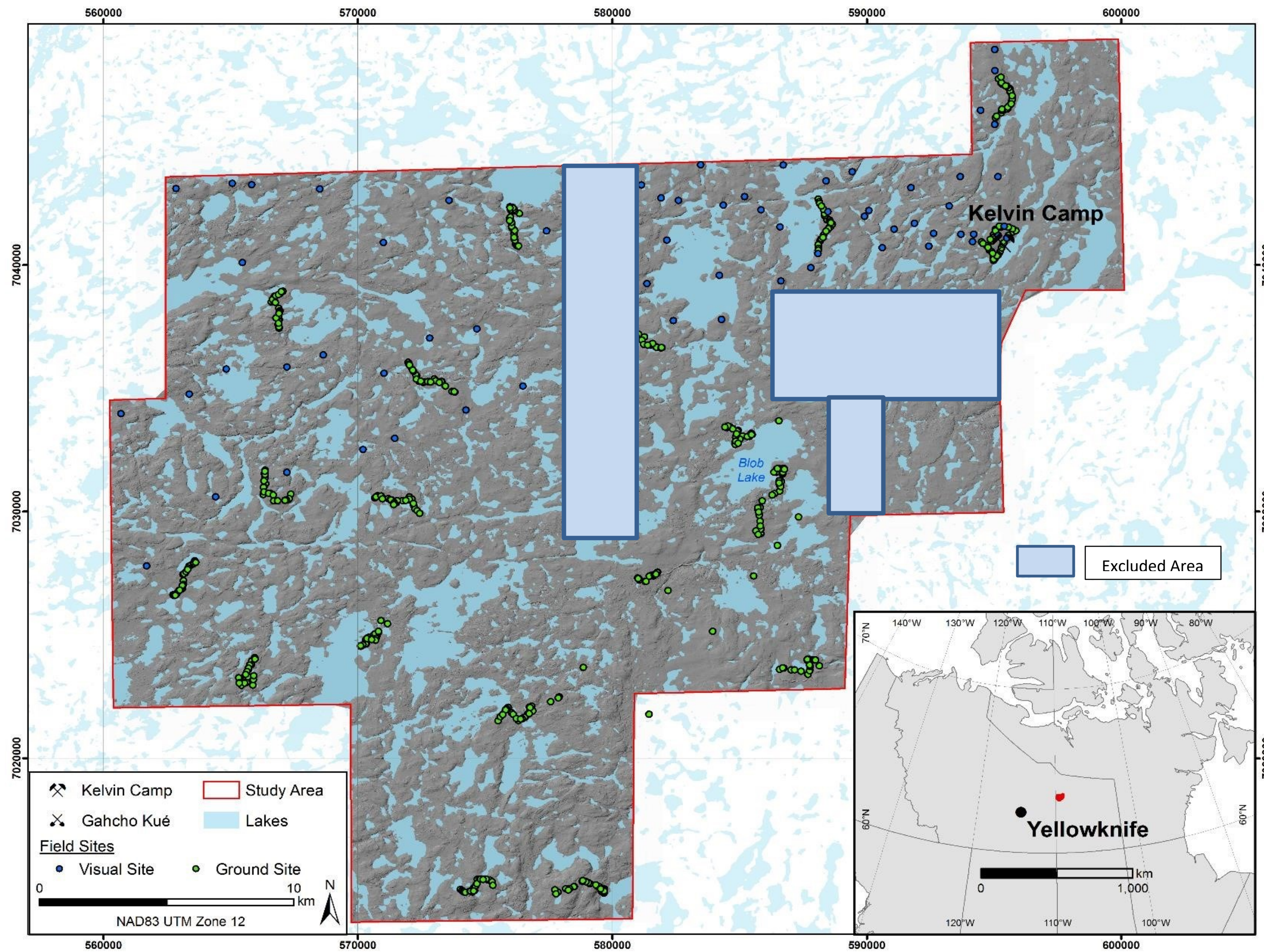

Figure 9-1. Field sites used to calibrate the remote surficial interpretations at Kennady North (Sacco, 2018a)

Table 9-1. Till sampling suitability classifications for the Kennady North property (Sacco, 2018a)

TSSR*	Description	Surficial map unit example	Implication for exploration
High (1)	All subglacial till	Tb	Most surface sediment is composed of till and suitable for sampling. Minor amounts of other materials may occur even when not indicated in map unit.
Moderately high (2)	Dominantly subglacial till, or all subglacial till with minor modification by geomorphological processes.	Tv.R; Tb-GL**	Majority of polygon is composed of till suitable for sampling with lesser areas of reworking or other surficial materials. Till polygons with the glacial lake overlay are interpreted to have minimal modification. Some scrutiny is required to locate unmodified till.
Moderate (3)	Dominantly subglacial till, with minor modification by geomorphological processes, or dominantly another surficial material with lesser amounts of till.	Tb.BC-GL**; GLv/Tb; R.Tv	Majority of polygon is till that was inundated under a glacial lake. Till polygons with the glacial lake overlay are interpreted to have minimal modification. Where till is overlain by glaciolacustrine veneers, the two materials may have been mixed by cryoturbation. Care should be taken when sampling and interpreting data from units affected by glacial lakes. Also includes polygons dominantly composed of another material, but within which suitable till can be located.
Moderately low (4)	Dominantly or all subglacial till affected by meltwater.	Tb.R-MW***	Unmodified till is difficult to locate. Sediment has likely been remobilized in the down-flow direction. Meltwater has potential to concentrate or remove KIMs. Unmodified till may be located by targeting topographic highs, and deposits down-flow from topographic highs that may have been protected.
Low (5)	Dominantly glaciofluvial or glaciolacustrine with lesser amounts of subglacial till, or lesser amounts of till with modification by any geomorphological process.	GFc.Tv-MV***	Till comprises a small proportion of these polygons and was likely heavily affected by meltwater processes. Suitable till may occur in thicker deposits where till is stratigraphically overlain by other materials and may have been transported to the surface by cryoturbation, or in areas protected from meltwater. Results from samples in these units should be considered unreliable without confirmation of suitablilty.
Very low (6)	No till.	Ap.O	Unlikely to locate till for sampling, till may be accessed in thicker deposits with the use of a drill.

* Till Sampling Suitability Rating; ** Affected by glacial lake; *** Reworked by meltwater

9.2.3 *Surficial Geology and Implication to Drift Prospecting*

A simplified surficial geology map is shown in Figure 9-2. The glacial history for the property has been interpreted from the 1:10,000-scale maps, the map units and their spatial extent. (Table 9-2).

The following is Sacco's interpretation. During the last glaciation, the Kennady North Property was largely affected by westward flowing ice controlled by the Keewatin Ice Divide (Aylesworth and Shilts, 1989). During deglaciation, the ice-flow direction shifted locally to the northwest and southwest, likely as a result of topographic influence and icesheet reorganization. As the ice margin neared and then retreated past the property, significant modification and remobilization of the surficial sediments occurred due to glaciofluvial and glaciolacustrine meltwater processes. Glaciofluvial processes were dominantly subglacial. Time-transgressive subglacial corridors occur throughout the study area in which existing till was reworked and remobilized. Proglacial meltwater formed glacial lakes in topographic lows where the ice margin, or detached ice blocks impeded drainage. Fine-grained material was deposited in lakes that persisted for extended periods of time and wave action along the glacial lake shorelines reworked pre-existing sediments. Glaciofluvial and glaciolacustrine sediments were reincorporated into the subglacial sediment load where ice recoupled to the surface after subglacial meltwater corridors were abandoned, or where ice readvanced over glacial lake basins or glaciofluvial deposits. The reincorporation of this material is hypothesized to have produced a second till facies identified in the study area. The second till facies is distinguishable from the typical subglacial till based on differences in the imagery such as lighter colour, fewer frost boils, and it more commonly exhibits ice-wedge polygons or streamlining. These differences likely indicate a different composition from tills derived primarily from bedrock sources; however, the effects on exploration data have yet to be determined. Based on descriptions in Knight (2017), these units may be akin to the moderately reworked tills defined therein. After deglaciation, periglacial processes continued to modify the landscape. Landforms were homogenized by downslope creep (solifluction) and vertical mixing (cryoturbation) of sediment, obscuring the evidence of glacial lake extents. Cryoturbation in the active layer mixed stratigraphically overlying sediments, and large organic complexes developed in poorly drained topographic lows.

Table 9-2 represents the surficial materials identified and their areal extent and Table 9-3 represents the landforms identified within the study area.

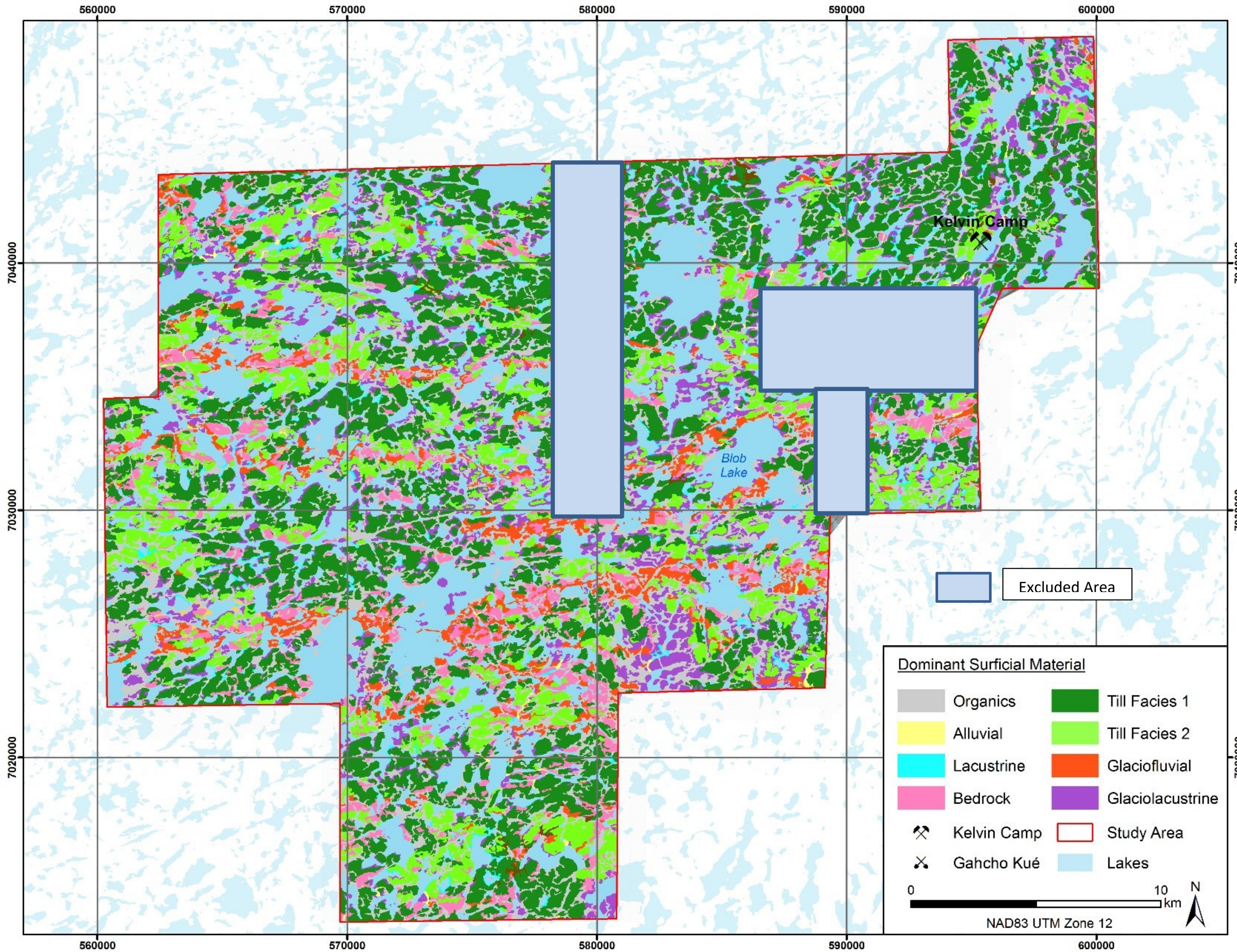

Figure 9-2. Surficial materials covering the Kennady North Project (Sacco, 2018a)

Table 9-2. Surficial material definitions, area and percent coverage on the Kennady North property (Sacco, 2018a).

Surficial Material	Description	Area (km^2) *	% of Study Area
Organic (O)	Composed of live and decaying plant material in bogs, marshes, fens and swamps. These deposits most commonly occur overlying fine-grained glaciolacustrine deposits, and in association with the margins of modern streams and lakes, but can develop in any poorly drained depressions.	136.1	16.1
Alluvial (Ap)	Deposited by water in modern drainage systems; generally occurs as plains between lakes. Most alluvial deposits in the study area are composed of cobbles and boulders, which are typically a lag created when streams flow over till.	2.6	0.3
Lacustrine (Lr)	Lacustrine material identifies modern beaches. Material is typically composed of boulders and sand derived from till.	8.9	1.1
Boulder concentrations (BC)	Concentrations of boulders with no assigned genesis. Deposits may be formed by a combination of meltwater, permafrost and/or nivation processes; may include weathered bedrock.	3.3	0.4
Colluvium (Cv)	<2 m thick deposits on or below steep slopes; typically composed of till or disaggregated bedrock transported by gravity; may include minor outcrop.	0.5	0.1
Glaciofluvial (GFb, GFc, GFh, GFr, GFv)	Material transported by meltwater composed dominantly of sand and gravel. Hummocky deposits and veneers over bedrock where subglacial meltwater has scoured the area are typically poorly sorted. Eskers and esker complexes are composed predominantly of sand and pebble gravel.	33.7	5
Glaciolacustrine (GLb, GLv)	Typically composed of sand and silt where deposited in offshore environments. Shoreline environments are coarser. May be mixed with underlying till, where it occurs, resulting in a silty diamict that is difficult to differentiate from till.	73.8	8.7
Till facies 2 (Tb2, Th2, Ts2, Tv2)	Interpreted to be a result of glacial readvance over glaciofluvial or glaciolacustrine material. These sediments are likely a combination of subglacial till and various amounts of reincorporated glaciofluvial or glaciolacustrine sediments. Commonly occur adjacent to subglacial meltwater corridors and down-ice from glacial lakes. Thicker deposits may exhibit ice-wedge polygons. The implications for exploration are unknown; however, hummocky deposits are typically associated with meltwater corridors and may be less appropriate for till sampling as they likely have a high glaciofluvial content.	94.2	11.1
Till facies 1 (Tb, Tv)	Till facies 1 is predominantly derived bedrock sources. Typically a compact diamict supported by a silty to sandy matrix with clast sizes ranging from pebble to boulder. Commonly develops frost boils at surface.	231.4	27.4
Bedrock (R)	Dominantly granitic or metasedimentary lithologies. Exposures occur most commonly where meltwater has eroded overlying material, and to a lesser extent where glacial scour exceeded sediment deposition. Where unmodified by deglacial processes, bedrock is generally associated with till veneers that infill hollows. Where meltwater processes occur, bedrock is generally associated with heavily reworked till or glaciofluvial veneers.	44.3	5.2
Lakes (L)	Modern lakes.	216.4	25.5

* Areas calculated based on the primary surficial material of each map unit.

Table 9-3. Surficial landform definitions and symbology (Sacco, 2018a).

Landform	Symbol	Description
Esker	>>>>>> >=>=>=	Paleoflow direction known or unknown; formed during sub- en- or surpraglacial drainage. Typically occur in complexes composed of moderate to well sorted pebble gravel.
Subglacial bedform	—	Landforms streamlined by flowing ice. Includes drumlins, crag-and-tails, and fluted drift or bedrock.
Streamlined Kame	⊇	Gravelly hummocks likely deposited subglacially and streamlined by ice.
Meltwater channel	+++++++> +++++++	Paleoflow direction known or unknown; channel carved into substrate by subglacial or proglacial meltwater.
Spillway	KKKKKB	Spillway from glacial lake; identifies minimum water surface elevation.
Shoreline	— — — —	Beach ridge or erosional scarp caused by glacial lake shoreline processes.
Kettle	Ω	Depression in glaciofluvial or glaciolacustrine material caused by the melting or buried glacial ice blocks.
Kame	Ψ	Glaciofluvial mound, hummock, or esker or shoreline fragment.
Patterned ground	κ	Ice-wedge polygons indicating massive ground ice.
Thermokarst subsidence	0	Subsidence due to the melting of permafrost.
Striation	≤	Linear small-scale features on bedrock caused by subglacial abrasion. Includes striations, grooves and rat tails.

Surficial processes are indicated in the mapping using overlays and include glacial meltwater, glacial lakes and ice-wedge polygons (Table 9-4). Ice-wedge polygons have minimal impact on till sampling but need to be accounted for in any future plans for mine infrastructure development as they represent massive buried ice. They are most prevalent in thick organic, glaciolacustrine or glaciofluvial materials. Ice-wedge polygons may occur in till where there are higher boulder concentrations on surface. It is postulated that melting ice-wedges introduce additional moisture into the sediment that promotes frost heaving.

Table 9-4. Surficial process definitions and symbology (Sacco, 2018a).

Process	Symbol	Description
Patterned ground	/	Surface expression of ice-wedge polygons; typically associated with thick glaciofluvial, glaciolacustrine and organic deposits; also occurs on some thick till facies 2 deposits.
Reworked by meltwater	∀	Identifies till that was heavily reworked by meltwater or waves; material has undergone considerable modification and/or remobilization.
Inundated by glacial lake	∃	Identifies till where associated landforms such as shorelines indicate the existence of a glacial lake; no visible indication of reworking or glaciolacustrine deposition, thus the extent of modification to till is unknown.

The 'reworked by meltwater' overlay was used for till that was reworked by meltwater in glaciofluvial and/or glaciolacustrine environments. Glaciofluvial environments occurred in east-west trending corridors that are interpreted to represent subglacial drainage (Figure 9-3). Knight (2017) identified numerous erosional corridors in the regional work. The higher-resolution imagery and LiDAR has allowed for a more detailed and accurate delineation of these features. These corridors, which occur at a higher density in the south, are typified by esker complexes and repeated patterns of scoured bedrock with down-flow adjacent hummocky gravels that are sometimes streamlined. The streamlining is interpreted to have occurred when the subglacial corridor was abandoned, and the glacier recoupled to the land surface and continued to flow. If subsequent flow occurred for a long enough period, till facies 2 was formed. Till facies 2 commonly occurs adjacent to the most recently active corridors and represents previous subglacial meltwater configurations. Suitable till for sampling is difficult to locate within these subglacial meltwater corridors. Mineralogical and geochemical data from these regions should be evaluated with caution as their concentrations or transport distances may not be comparable to data from unmodified till. These data, however, may show similar dispersal directions to unmodified till because the hydraulic gradients are similar to ice-flow directions.

During deglaciation, glacial lakes developed to various surface elevations in many of the existing lake basins. Most modern lakes had water surface elevations several metres higher than at present that inundated areas beyond their present limits. In addition, shorelines, spillways and glaciolacustrine sediments that occur at consistent elevations throughout the study area suggest a regional interconnected system of lakes with a minimum surface elevation of 420 m asl (Figure 9-4). Hardy (1997) also noted shorelines at 420 m asl. The specific configuration of the regional lake is unknown, and the surface elevation may increase to the west and decrease to the east, controlled by the eastward-retreating ice margin and isostasy. Knight (2017) also suggests regional glacial lakes likely developed in the area. The regional glacial lake described here could be connected to Knight's proposed Paleo Clinton-Colden, or potentially Paleo Lac de Gras, depending on isostasy. A conservative approach to defining the lake limits was applied based on mappable features. The actual extent of the lake could have been much greater, as Knight (2017) suggests for the Paleo Lac de Gras; however, no indication of modification was continuously identified at higher elevations, which would be required to invoke a glacial lake of that extent.

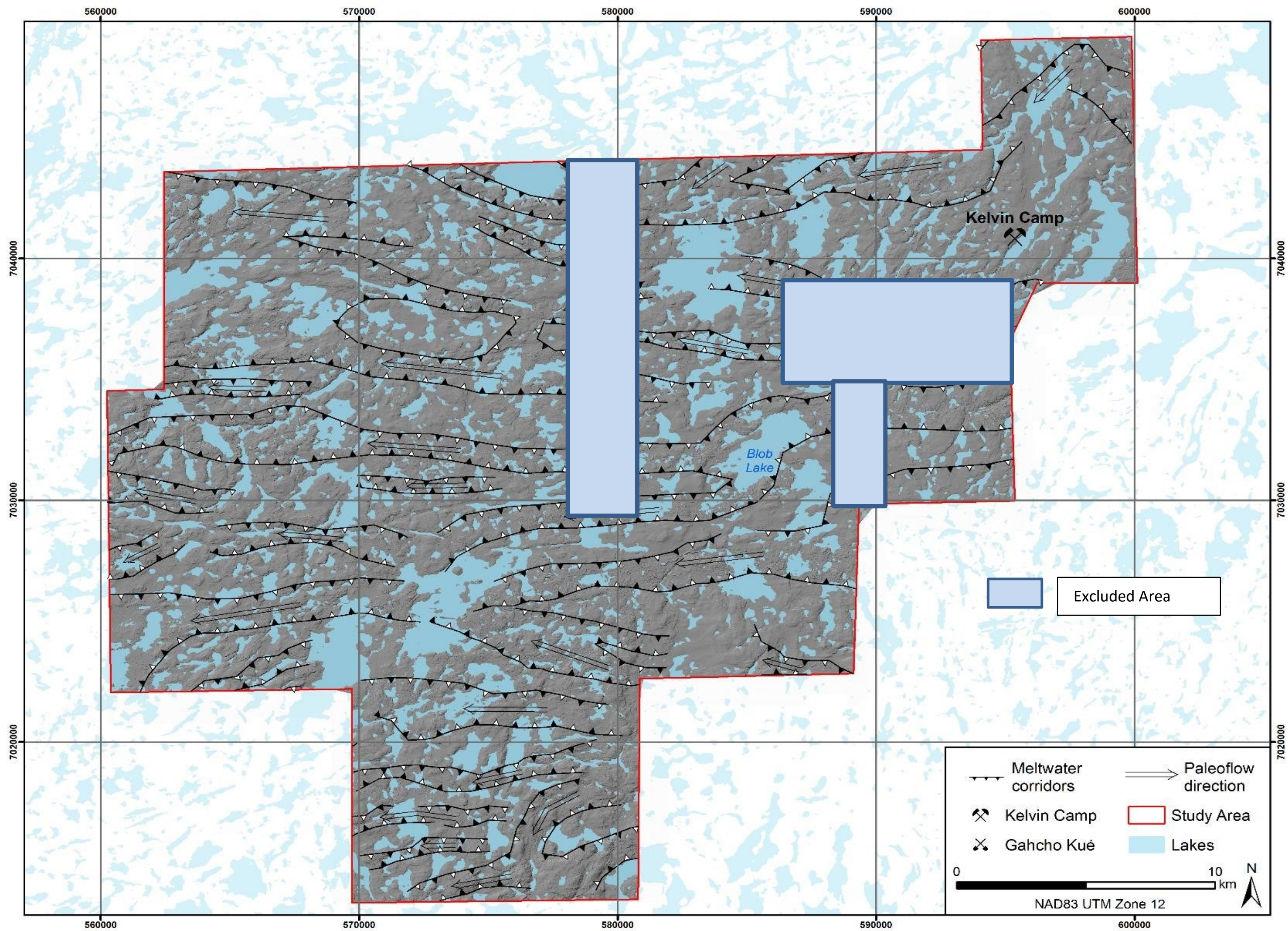

Figure 9-3. Generalized subglacial, east-west oriented meltwater corridors (Sacco, 2018a).

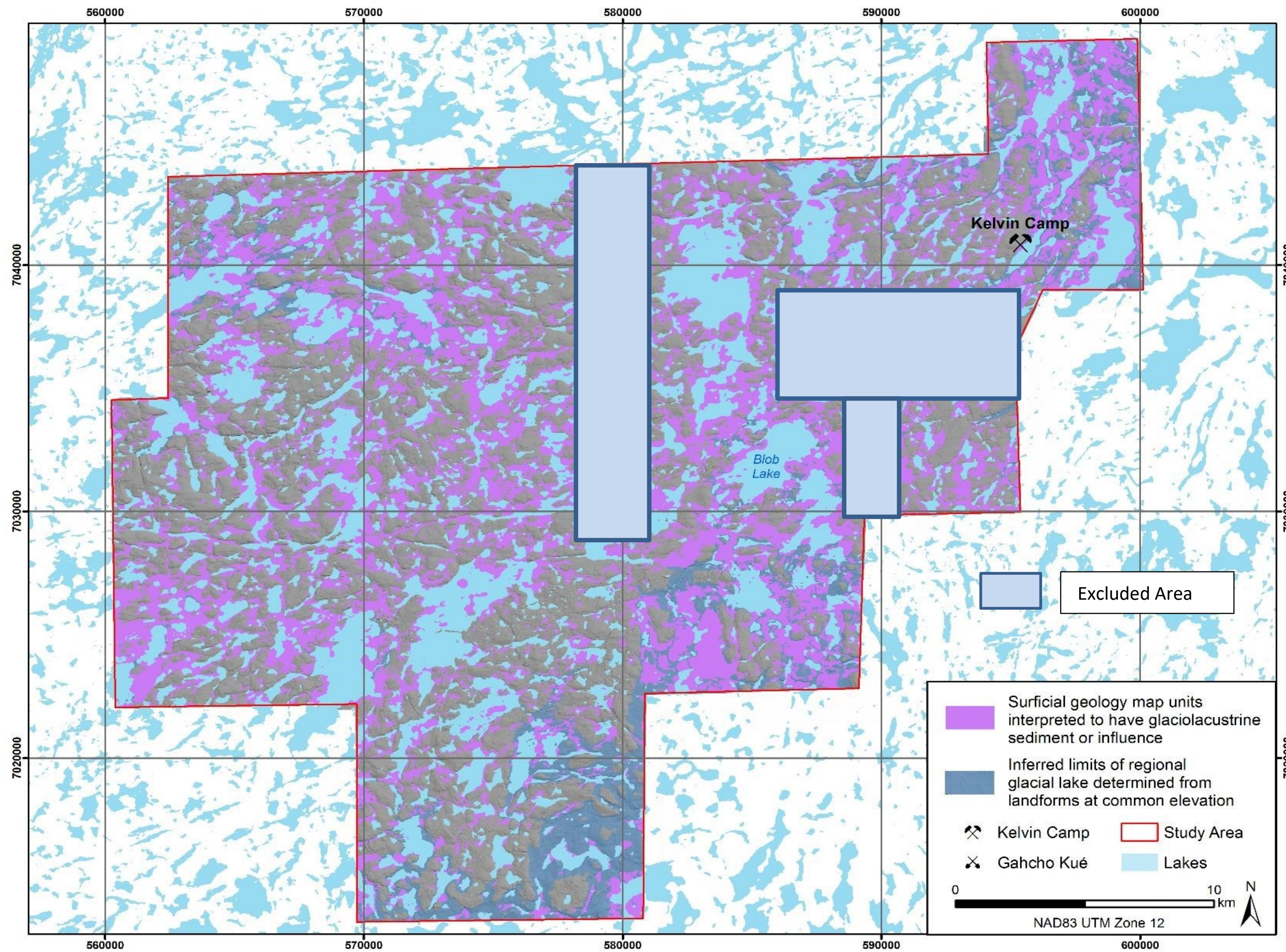

Figure 9-4. Inferred areas affected by glacial lakes (purple) based on surficial material and landform interpretations. The regional lake (dark blue) is modelled by 'flooding' a digital elevation model (DEM) to 420 masl (Sacco, 2018a)

The effect of glacial lakes on till varies because it is dependent on the length of time that the lake existed, the size and depth of the lake, and its fetch. These properties can be difficult to determine from the present landscape. From the imagery and field investigations, three general glacial lake environments are interpreted:

- Basin environments were low energy allowing for fine-grained sedimentation (e.g., GLv/Tb). Where these fine-grained sediments overlie till, cryoturbation may have mixed the two materials resulting in potential dilution of KIM and geochemical concentrations. These diluted tills are difficult to identify without granulometry. Recent unpublished work conducted with the Northwest Territories Geological Survey identified that till samples from basin environments have higher fine sand proportions and lower coarse sand proportions than till collected from above the interpreted glacial lake surface elevation. These preliminary findings suggest that dilution of the fine sand fraction is occurring in these environments, and thus KIM concentrations may also be diluted.
- Near-shore areas are more energetic due to littoral processes. This can result in a lack of sedimentation (e.g, Tb with a glacial lake overlay) or reworking of underlying material (e.g., Tb with a meltwater overlay). Similarly, steeper slopes deterred sedimentation, and thus may be only minimally affected by the glacial lake.
- Shoreline environments are subject to wave action, which results in the reworking of material and possibly the concentration of KIMs. Unpublished granulometry results from the Northwest Territories Geological Survey indicate till affected by shoreline processes have low proportions of silt and fine sand and higher proportions of medium to coarse sand as compared to unaffected till from above the lake surface elevation.

9.2.4 *Ice-Flow History and sediment Transport Directions*

The dominant ice-flow and sediment transport directions are determined largely from streamlined bedforms and striations. Where relative chronologies can be determined though striation sequencing (e.g., location on bedrock outcrop; cross-cutting relationships), the striation data can provide evidence of early or late ice-flow events that are not represented by the macroforms. Streamlined kame deposits were interpreted to provide an indication of later stage ice-flow direction. Changes in ice-flow during deglaciation can also be indicated by the orientation of linear meltwater features such as meltwater channels and eskers. The early and late ice-flow directions may only have a local, or insignificant, effect on dispersal patterns.

Generalized ice-flow directions throughout the study area are depicted in Figure 9-5 and symbolized to represent either the interpreted early, dominant or late sediment transport directions. Early ice-flow directions are assigned where striation sequencing indicates relative ages. The earliest interpreted iceflow is identified in the southwest part of the property where striations oriented at 255° were protected from subsequent ice flow events. This interpretation is supported by other striations recorded by Hardy (1997), who also suggest an early southwest ice-flow direction. Dominant sediment transport directions are assigned where many large-scale features are oriented in similar directions across large areas. The

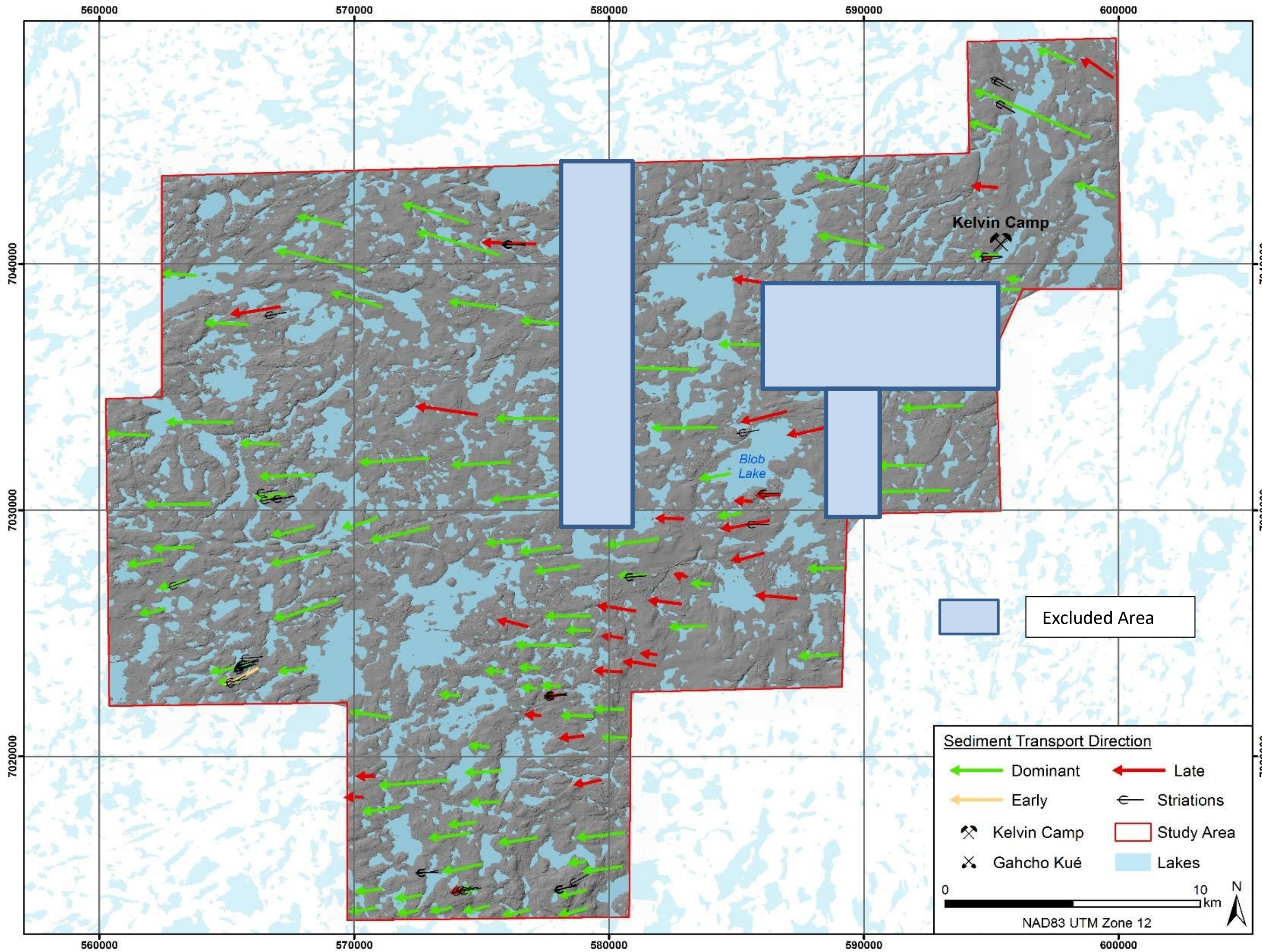

Figure 9-5. Generalized sediment transport directions based on ice-flow indicators at the Kennady North property (Sacco, 2018a)

macroforms suggest sediment was dominantly transported to the west through the centre of the study area, and slightly more northwest in the north, and southwest in the south. Based on the regional understanding of the ice morphology during the glacial maximum, it is expected that most of sediment was initially transported west, and the later north and south deviations may have caused subtle palimpsests. As the deviations are relatively simple, these palimpsests should not impede the interpretation of till data. Late-stage ice-flow is assigned where fewer features occur within topographic lows that may have influenced ice direction, or striation sequences indicate relative ages. Late stage iceflow changes are subtle but should be considered when evaluating dispersals. The overall ice-flow history determined from this mapping supports the interpretations by Hardy (1997).

9.2.5 *Till Sampling Suitability*

The TSS ratings derived from the surficial geology mapping are specific to the Kennady North property. In general, the property is moderately to well suited to till sampling (Figure 9-6). The subglacial meltwater corridors are interpreted to have the greatest effect on till sampling suitability. Suitable till occurs and is relatively easy to locate in areas with TSS ratings of 1 to 3. These areas should be targeted for any additional till sampling. Areas with a TSS of 4 will likely have unmodified till, but the areal extent will be limited. More time should be allocated to sample collection in these areas. Areas with a TSS of 5 or 6 have little to no unmodified till. Sampling these areas requires more time and should be conducted by a well-trained crew to ensure the collection of reliable data. The areal extent of TSS categories is presented in Table 9-5.

Table 9-5. Areas and percent of the till sampling suitability for the Kennady North property (Sacco, 2018a)

TSSR*	Area (km^2)	% of Study Area
1	142.3	16.8
2	82	9.7
3	68	8.2
4	77	9.1
5	50.2	5.9
6	208.9	24.7
Lakes	216.4	25.5

The highest TSS occurs in the northern parts of the study area where unmodified till blankets and veneers are dominant. Most till samples collected beyond the peripheries of the modern lakes and the well-defined subglacial meltwater corridors provide reliable data that can be interpreted with little consideration for postdepositional reworking of the till. South of Blob Lake is poorly suited to till sampling. Here, the meltwater corridors are larger and more irregularly configured. This area is dominated by scoured bedrock, glaciofluvial deposits and heavily reworked till. TSS improves in the southernmost part of the study area with the occurrence of more unmodified till units. However, there is more till facies 2 and areas that were inundated by glacial lakes, both of which have a largely unknown effect on KIM and geochemical concentrations.

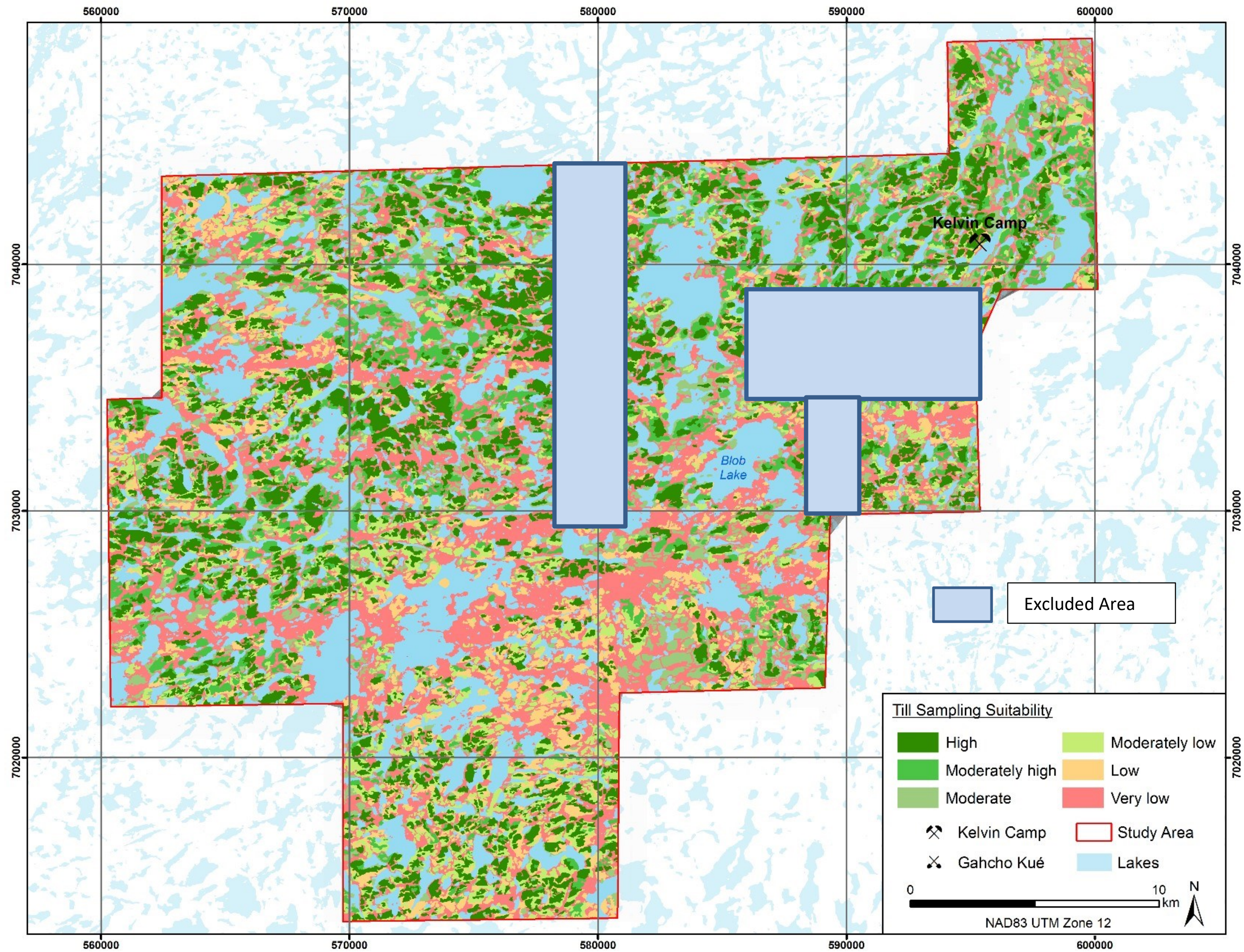

Figure 9-6. Till sample suitability for the Kennady North property (Sacco, 2018a)

9.2.6 *Summary of Till Suitability Survey*

The overall pattern of glaciation and geomorphological processes that affected the area during deglaciation determined in this study support previous interpretations by Hardy (1997) and Knight (2017). The glacial history of the Kennady North property is complex due to the influence of deglacial meltwater flowing through subglacial channels and into glacial lakes. Initially, subglacial till was likely deposited over the entire study area with a dominantly western transport direction. Later, till was remobilized and reworked in extensive east-west trending meltwater corridors leaving swaths of scoured bedrock, reworked till and glaciofluvial deposits. The initial western till dispersal likely shifted slightly north in the northern part of the study area and south in the southern part. After ice retreat, deglacial lakes developed in many basins, including a regional interconnected system of lakes that may have inundated much of the property that is below 420 m asl. Since deglaciation, periglacial processes have homogenized sediments and obscured much of the evidence of these events.

The surficial geology interpretations provide a context in which existing surface sediment data can be evaluated. Data from reworked areas, areas inundated by glacial lakes, and till facies 2 should be evaluated with caution. Reworked areas likely have spurious KIM and geochemical concentrations and farther transport distances when compared to unmodified till. These data should be evaluated independently. The effect of glacial lakes and the variances in data from till facies 2 are largely unknown. Subpopulations of data from these environments should be analysed to determine if these data should also be evaluated independently or can be compared with the unmodified till data set. Once the existing data have been evaluated, and unsuitable samples have been removed from the data set, in-fill sampling can be conducted in areas of interest using the TSS mapping as a guide.

9.3 KIM Data Re-valuation

This section is also modified from Sacco (2018b; Evaluation of kimberlite indicator minerals in surface sediment on the Kennady North Claims, Northwest Territories) and Gal (2018).

9.3.1 *Introduction*

A generalized surficial geology map with ice flow and subglacial meltwater corridors graphically summarizes Section 9.2 and is shown in Figure 9-7. The evaluation of surface sediment sample exploration data is designed to identify and refine exploration targets. The evaluation is based upon the interpretation of the property-wide kimberlite indicator mineral (KIM) dataset in context with a detailed surface geology framework and considering analytical differences that could affect mineral concentrations.

The KIM trains have been used historically to locate kimberlite bodies; while some KIM trains have no identified sources. The intent with the current study is to provide a higher resolution surficial context for the re-evaluation of the KIM data. These detailed surficial interpretations provide a comprehensive surficial framework that inventories sediment deposits, informs how the sediments were derived and transported, and describes post-depositional processes that may have altered the in-situ characteristics of the sediment. Any reference to K1 represents a historical name for the Doyle kimberlite sill.

The glacial history of the Kennady North property is complex due to the influence of deglacial meltwater flowing through subglacial channels and into glacial lakes. Initially, subglacial till was likely deposited over

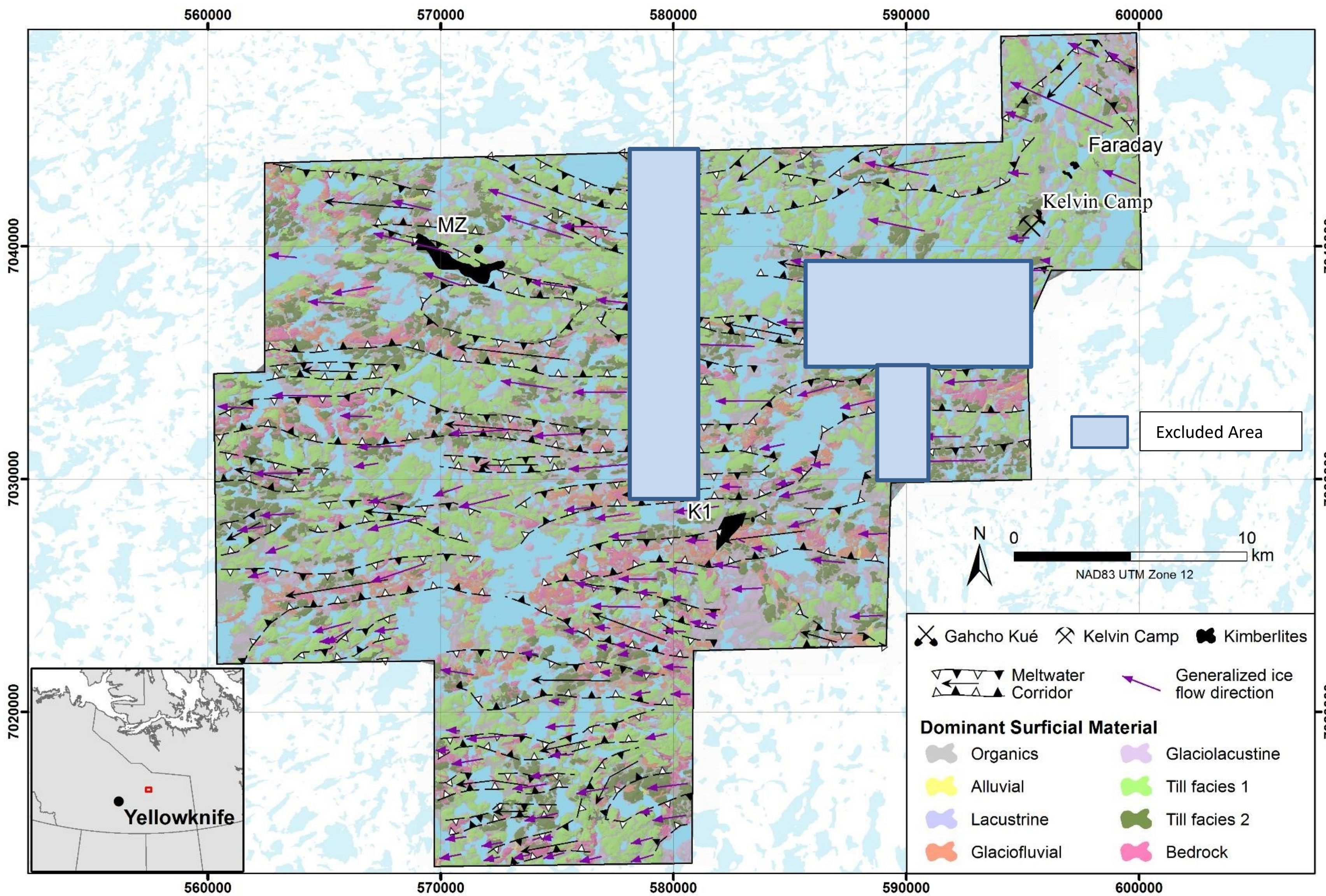

Figure 9-7. Generalized surficial geology, ice flow and subglacial meltwater corridors on the Kennady North property (Sacco, 2018a)

the entire study area with a dominantly western transport direction. Later, till was remobilized and reworked in extensive east-west trending meltwater corridors, leaving swaths of scoured bedrock, reworked till and glaciofluvial deposits. The initial westward till dispersal likely shifted slightly northward in the northern part of the study area and southward in the southern part. After ice retreat, deglacial lakes developed in many basins, including a regional interconnected system of lakes that may have inundated much of the property that is below 420 m asl. Since deglaciation, periglacial processes have homogenized sediments, obscuring much of the evidence of the glacial lakes.

For this evaluation, the KIM data were standardized with respect to the surficial environment and analytical methods to create comparable subpopulations with similar transport histories. The subpopulations were then assessed using single and multi-mineral evaluations to identify and refine dispersal patterns and determine potential exploration targets. This list of exploration targets is meant to be exhaustive, such that even the subtlest dispersals were identified. Further evaluations with additional datasets (e.g., geophysics, mineral and sediment chemistry) should be completed to further inform the validity and priority of the targets.

9.3.2 *Surface sediment datasets*

Two datasets were evaluated: AR and GGL-normalized, which represent the assessment report data and the GGL database which was purchase by KDI, respectively. Standardization of the data resulted in identification of three analytical subpopulations: AR data; GGL-normalized visual data; and GGL-normalized probe data. The GGL-normalized data sets were further subdivided into fine, medium and coarse size fractions. However, the coarse fraction was not considered further in the evaluation due to the limited number of grains recovered. Each of the subpopulations was then subdivided into genetic categories based on the surficial mapping, and their data distributions were compared to determine which subpopulations could be recombined.

Indicator mineral counts in till facies 2 were higher than in till facies 1 for some minerals; however, their numbers were typically within a few grains of each other and it was determined that these data could be evaluated together. The differences were minimal in samples of till facies 1 and 2 that were associated with glaciofluvial material, and samples affected by meltwater. Also similar were the KIM counts from samples of till facies 1 and 2 that were associated with glaciolacustrine material, and/or influenced by interpreted glacial lakes. One exception was in the GGL-normalized visually picked data set where till facies 1 and 2 samples that were affected by glaciolacustrine processes (both in association with glaciolacustrine and inundated by a glacial lake) were different enough in KIM counts to be evaluated separately. Table 9-6 summarizes the subpopulations used in evaluating the data.

Table 9-6. Final genetic subpopulations for the three main analytical subpopulations

Data set	Genetic subpopulations				
AR visual data	GF	Modern and GL	Till	Till + GF	Till + GL
GGL-Normalized probe data	GF	Modern and GL	Till	Till + GF	Till + GL
GGL-Normalized visual data	GF, modern and GL	Till	Till + GF	Till 1 + GL	Till 2 + GL

GF= glaciofluvial, GL= glaciolacustrine. Sacco, 2018b.

9.3.3 *KIM Anomaly Thresholds*

Determined anomaly thresholds (for anomaly levels A1 to A4) for the subpopulations are listed in Tables 9-7 to 9-11. Figures 9-8 and 9-9 display the aggregated anomaly scores for all till data, and all glaciofluvial sediment data, respectively, for the study area.

Table 9-7. KIM Anomaly thresholds for subpopulations of the AR data set.

	Genetic Category	A1	A2	A3	A4
Garnet	GF	1	2	5	8
	Modern and GL	1	2	3	6
	Till	1	3	8	10
	Till + GF	1	2	4	7
	Till +GL	1	3	10	14
Ilmenite	GF	1	2	5	8
	Modern and GL	1	2	3	6
	Till	1	3	8	10
	Till + GF	1	2	4	7
	Till +GL	1	3	10	14
Chrome diopside	GF	1			
	Modern and GL	1	2		
	Till	1			
	Till + GF	1	2		
	Till +GL	1			
Spinel	GF	1	2	6	10
	Modern and GL	1	2		
	Till	1			
	Till + GF	1	2	5	
	Till +GL	1	2	5	
Olivine	GF	1			
	Modern and GL	1			
	Till	1			
	Till + GF	1			
	Till +GL	1	2		
Eclogitic garnet	GF	n/a			
	Modern and GL	1			
	Till	n/a			
	Till + GF	n/a			
	Till +GL	n/a			
A-score	GF	1	2	3	4
	Modern and GL	1	2	3	4
	Till	1	2	4	5
	Till + GF	1	3	4	6
	Till +GL	1	2	3	4

GF= glaciofluvial, GL= glaciolacustrine. Sacco, 2018b.

A-scores represent multi-variate anomaly-scores. They are calculated by summing the individually determined anomaly levels (0-4) for garnet, ilmenite and chrome diopside t produce a final value between 0 and 12. If one does not use multi-variate analyses, then prominent KIMs like garnet which are prevalent in this terrane skews the scores.

Table 9-8. KIM Anomaly thresholds for subpopulation of the GGL-normalized probe data set (fine-size fraction).

	Genetic Category	A1	A2	A3	A4	A5
Garnet	GF	1	3	7	12	156*
	Modern and GL	1	2	3	5	137*
	Till	1	2	4	10	35*
	Till + GF	1	2	3	5	34*
	Till +GL	1	2	8	22	24*
Ilmenite	GF	1	2	4*	25*	91*
	Modern and GL	2*	7*	22*	75*	250*
	Till	1	2	7		
	Till + GF	1	2	9	99*	
	Till +GL	1	3*	8	10*	
Chrome diopside	GF	1	2	6		
	Modern and GL	1				
	Till	1	2			
	Till + GF	n/a				
	Till +GL	1				
Spinel	GF	1	2	3	5	
	Modern and GL	1	2	3		
	Till	1	2	3	8	
	Till + GF	1	2	3	4	
	Till +GL	1	2	3	43	
Olivine	GF	n/a				
	Modern and GL	1				
	Till	1				
	Till + GF	2				
	Till +GL	n/a				
Eclogitic garnet	GF	1	3	7*		
	Modern and GL	n/a				
	Till	1				
	Till + GF	1	2	3		
	Till +GL	1	2			
A-score	GF	1	3	5	7	9
	Modern and GL	1	2	4	7	8
	Till	1	2	3	4	6
	Till + GF	1	2	3	5	8
	Till +GL	1	2	4	6	8

GF= glaciofluvial, GL= glaciolacustrine. Values with asterisks were added to accommodate the high values in the dispersal from the Doyle Sill. n/a= not applicable. Sacco, 2018b.

Table 9-9. KIM Anomaly thresholds for subpopulation of the GGL-normalized probe data (medium-size fraction).

	Genetic Category	A1	A2	A3	A4	A5
Garnet	GF	1	2	8	162*	
	Modern and GL	1	10	55	70	
	Till	1	2*	4*		
	Till + GF	1	2			
	Till +GL	1	2	3		
Ilmenite	GF	3	15*	48*	60*	165*
	Modern and GL	1	20*	125*	193*	
	Till	1	3*	8*		
	Till + GF	1	2*	3*		
	Till +GL	1*	2*	4*	5*	
Chrome diopside	GF	1				
	Modern and GL	1				
	Till	n/a				
	Till + GF	n/a				
	Till +GL	1				
Spinel	GF	1	3	5		
	Modern and GL	1	2			
	Till	1	2	8		
	Till + GF	1	2			
	Till +GL	1	2			
Olivine	GF	n/a				
	Modern and GL	n/a				
	Till	n/a				
	Till + GF	n/a				
	Till +GL	n/a				
Eclogitic garnet	GF	1	2			
	Modern and GL	1*	3*			
	Till	2				
	Till + GF	1				
	Till +GL	1	2			

GF= glaciofluvial; GL= glaciolacustrine. Values with asterisks were added to accommodate the high values in the dispersal from the Doyle Sill. n/a= not applicable. Sacco, 2018b.

Table 9-10. KIM Anomaly thresholds for subpopulation of the GGL-normalized visually-picked data set (fine-size fraction).

	Genetic Category	A1	A2	A3	A4	A5
Garnet	GF, modern and GL	1	2	4	10	
	Till	1.5	2.5	5	14	
	Till + GF	1.5	2	4.4	7	
	Till1 +GL	1	2	4	8	
	Till2 +GL	1	2	10	26	
Ilmenite	GF, modern and GL	1	2	4	8	
	Till	1	2			
	Till + GF	2	4			
	Till1 +GL	4				
	Till2 +GL	1				
Chrome diopside	GF, modern and GL	1				
	Till	1				
	Till + GF	1.5				
	Till1 +GL	1				
	Till2 +GL	1				
Spinel	GF, modern and GL	1.5	2			
	Till	1	2	5	18	
	Till + GF	1	2	4	6	
	Till1 +GL	1	2	3		
	Till2 +GL	1				
Olivine	GF, modern and GL	1	3	4		
	Till	2	4			
	Till + GF	1				
	Till1 +GL	1	2			
	Till2 +GL	1				
Eclogitic garnet	GF, modern and GL	1	2	8	12	
	Till	1				
	Till + GF	1	2			
	Till1 +GL	n/a				
	Till2 +GL	1.5	2			
A-score	GF, modern and GL	1	2	3	4	8
	Till	1	2	3	4	
	Till + GF	1	2	3	4	6
	Till1 +GL	1	2	3	4	
	Till2 +GL	1	2	3	4	

GF= glaciofluvial, GL= glaciolacustrine. n/a= not applicable. Sacco, 2018b.

Table 9-11. KIM Anomaly thresholds for subpopulation of the GGL-normalized visually-picked data set (medium-size fraction).

	Genetic Category	A1	A2	A3	A4	A5
Garnet	GF, modern and GL	1	2	4	23	1
	Till	3	5	15	24	3
	Till + GF	1	4	12		1
	Till1 +GL	4				4
	Till2 +GL	1	2	8		1
Ilmenite	GF, modern and GL	5			5	
	Till	1	2	3	1	
	Till + GF	2	6		2	
	Till1 +GL	n/a			n/a	
	Till2 +GL	1	2	5	1	
Chrome diopside	GF, modern and GL	n/a				
	Till	n/a				
	Till + GF	n/a				
	Till1 +GL	n/a	2			
	Till2 +GL	n/a				
Spinel	GF, modern and GL	1				
	Till	n/a				
	Till + GF	n/a				
	Till1 +GL	n/a				
	Till2 +GL	n/a				
Olivine	GF, modern and GL	n/a				
	Till	n/a				
	Till + GF	n/a				
	Till1 +GL	n/a				
	Till2 +GL	n/a				
Eclogitic garnet	GF, modern and GL	n/a				
	Till	1				
	Till + GF	n/a				
	Till1 +GL	n/a				
	Till2 +GL	1				

The anomaly thresholds for ilmenite were determined for the full data set, as there were too few results with the Doyle Sill dispersal removed. GF= glaciofluvial, GL= glaciolacustrine. Sacco, 2018b.

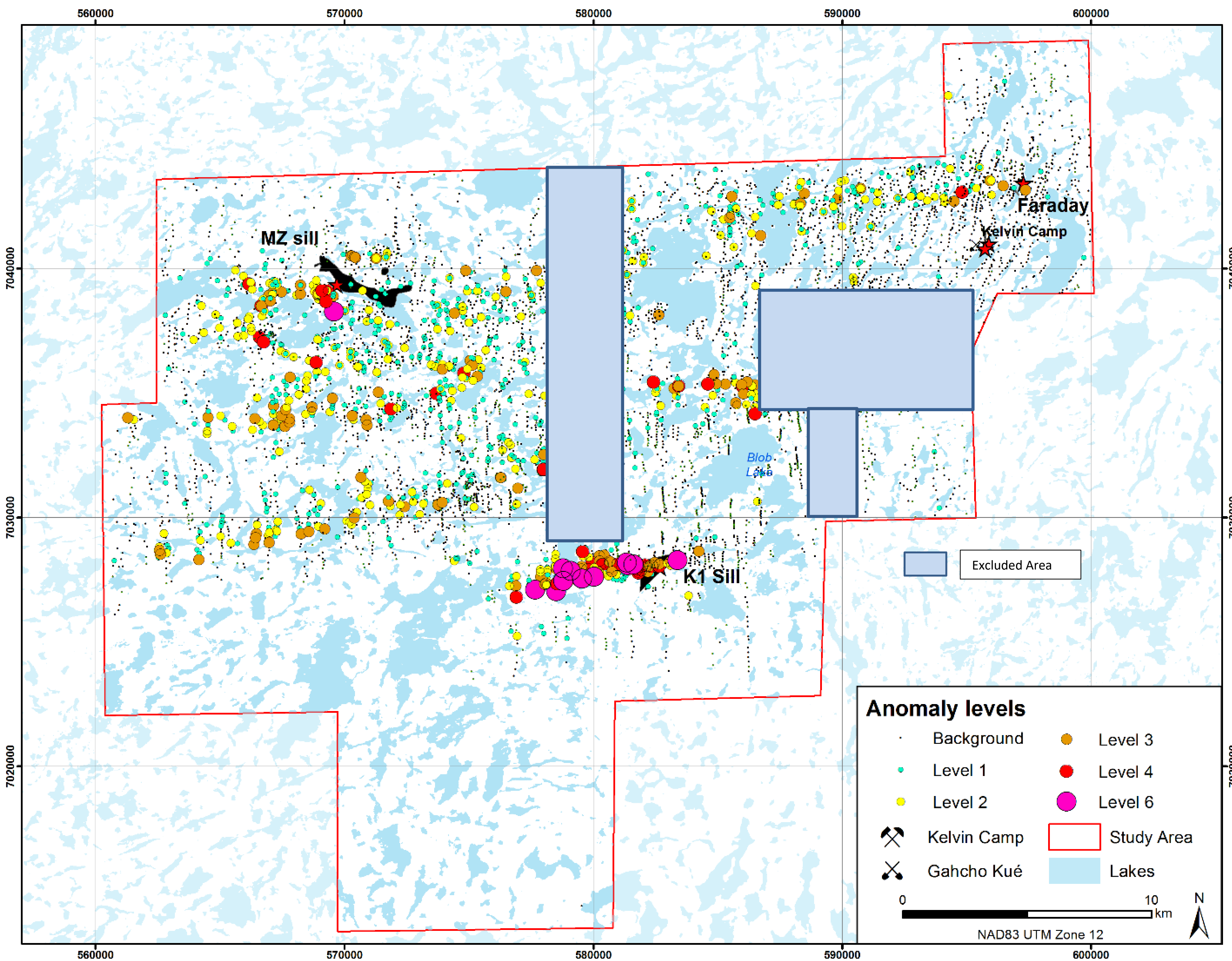

Figure 9-8. Proportional dot plot showing anomaly scores for all till data for the Kennady North property (Sacco, 2018b). K1= Doyle Sill.

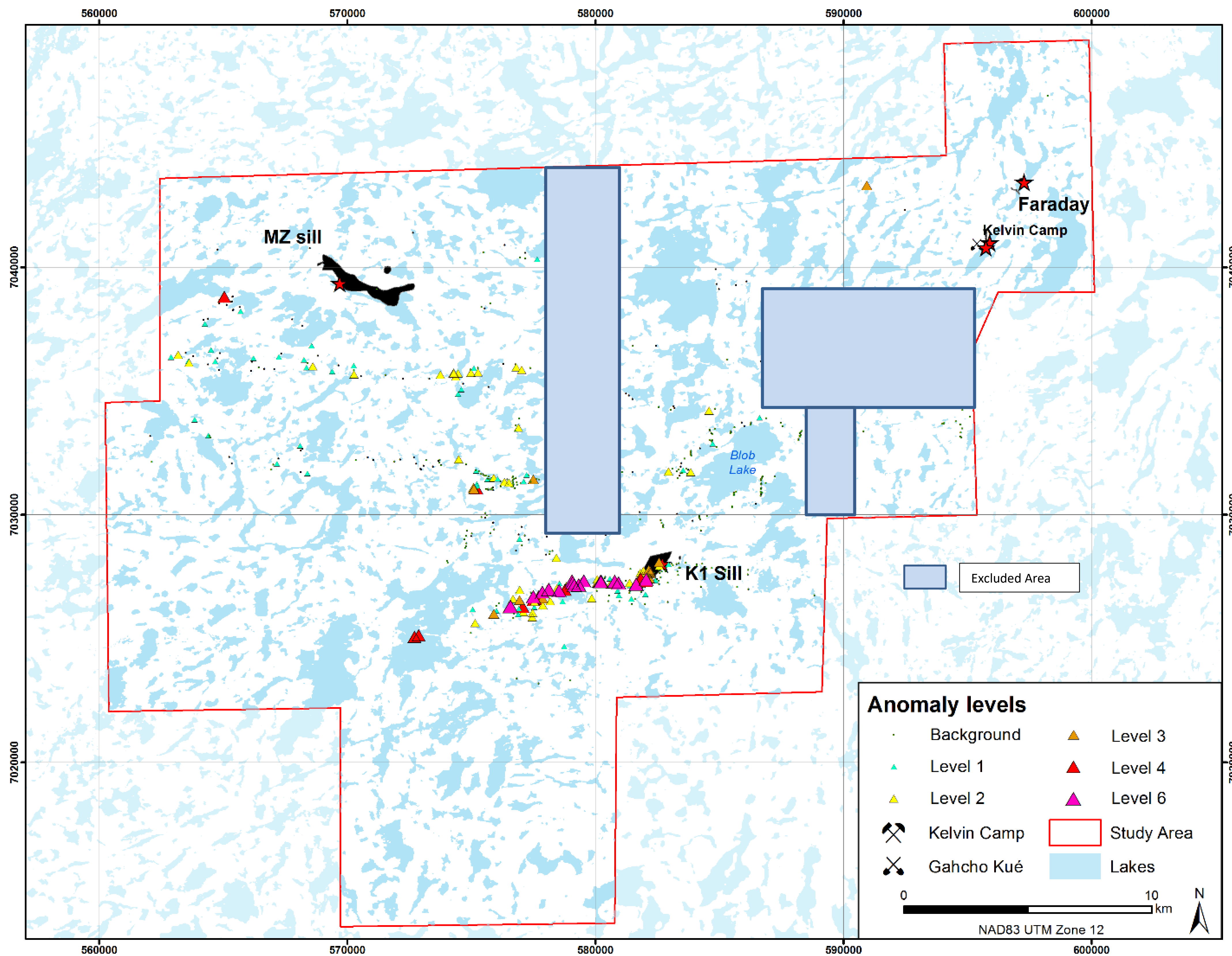

Figure 9-9. Proportional dot plot showing anomaly scores for all glaciofluvial data for the Kennady North property (Sacco, 2018b). K1= Doyle Sill.

9.3.4 *Dispersal patterns in standardized and re-evaluated data sets*

Sacco (2018b) identified twenty apparently unique dispersal patterns in the standardized data. Six of these were in glaciofluvial sediments and 14 in tills (Table 9-12, Figure 9-10 and 9-11). Generally, the dispersal patterns were more readily distinguishable in the east and central parts of the property, and more difficult to distinguish in the northwest. Sacco (2018b) attributed this to meltwater modifications associated with glaciofluvial and glaciolacustrine processes that were active in the northwest.

Several of the identified dispersals may be parts of a dispersal from a single source. For example; D6, D8, D9, and D16 occur along a southwest trend and could be palimpsests from a primary dispersal from Gahcho Kué that developed earlier in glaciation when ice-flow was to the southwest. The paucity of anomalies between the individual dispersals suggests that there are multiple sources; however, additional work should be completed to better understand the nature of these dispersals.

Similarly, D17 could be from a single source, or comprise several unique dispersals. Clusters of samples with higher anomalies throughout D17, and an apparent dispersal direction that is not congruent with the dominant sediment transport direction, suggests multiple sources. The shape of the dispersal could be partially explained by variations in ice-flow direction. New till sample collection from specific locations would aid interpretation.

Table 9-12. Summary of attributes of identified dispersals (Sacco, 2018b)

Dispersal ID	Sample media	Strength	Continuity	Comment
D1	GF	mod	high	May have similar source to D13
D2	GF	low-mod	low	--
D3	GF	high	low	Appears to be related to D2 but counts are higher
D4	GF	high	high	Dispersal from K1 (Doyle)
D5	Till	high	high	Dispersal from K1 (Doyle)
D6	Till	high	high	Dispersal from Gacho Kué
D7	Till	high	mod	Composed of few samples but high anomalies
D16	Till	mod-high	high	Possibly related to same source as D2, D3, D8; paucity of anomalies in till between D8 and D16 suggests different source
D17	Till	mod	high	Clusters of high anomalies throughout dispersal and shape not congruent with transport suggest possibility of multiple sources. Could also be palimpsest from Faraday
D18	Till	mod-high	high	Possibly related to same source as D16; paucity of anomalies in till between D8 and D16 suggests different source
D2	Till	mod-high	mod-high	Well-defined dispersal
D16	Till	mod-high	mod	Poorly defined due to reworking in area; shape of head may indicate multiple or elongated source
D8	Till	mod-high	mod-high	Shape incongruent with sediment transport
D9	Till	weak	low	low anomalies and continuity; could be background
D10	Till	mod	low-mod	Composed of many reworked samples; could be part of D17
D11	Till	high	high	Dispersal from MZ sill; area has been reworked by meltwater and glacial lakes
D12	Till	mod	low-mod	Small dispersal possibly related to addition exposure of MZ sill
D13	Till	mod-high	low	May be from same source as D1 in GF material
D14	GF	weak	low	Could be related to Gahcho Kué through meltwater corridor, but direction of eskers suggests there could be an additional source south of Gahcho Kué
D15	GF	weak-mod	low	Likely remobilized by meltwater from D16

GF= glaciofluvial, mod= moderate.

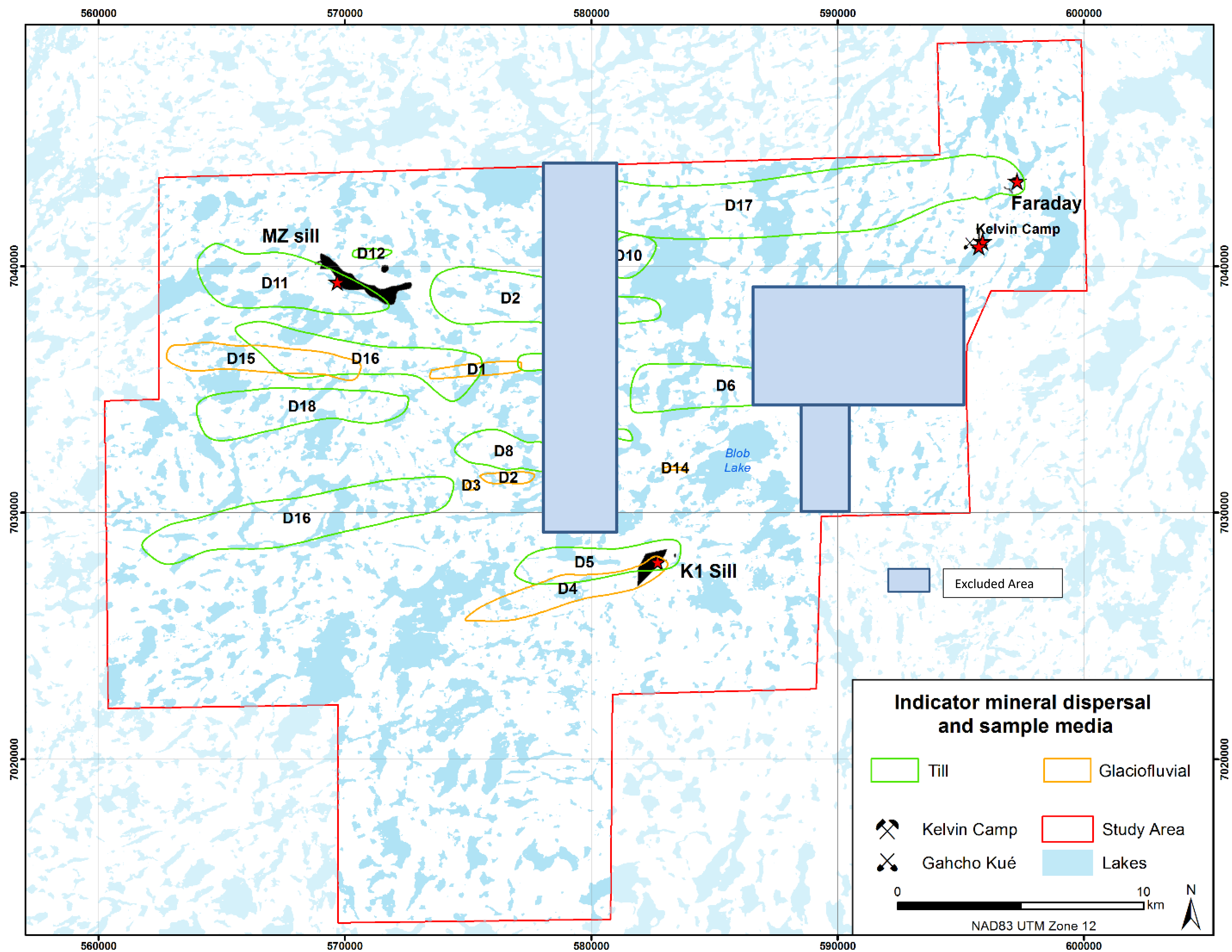

Figure 9-10. KIM dispersals identified from till and glaciofluvial data for the Kennady North property (refer to Table 9-13), (Sacco, 2018b). K1=Doyle Sill.

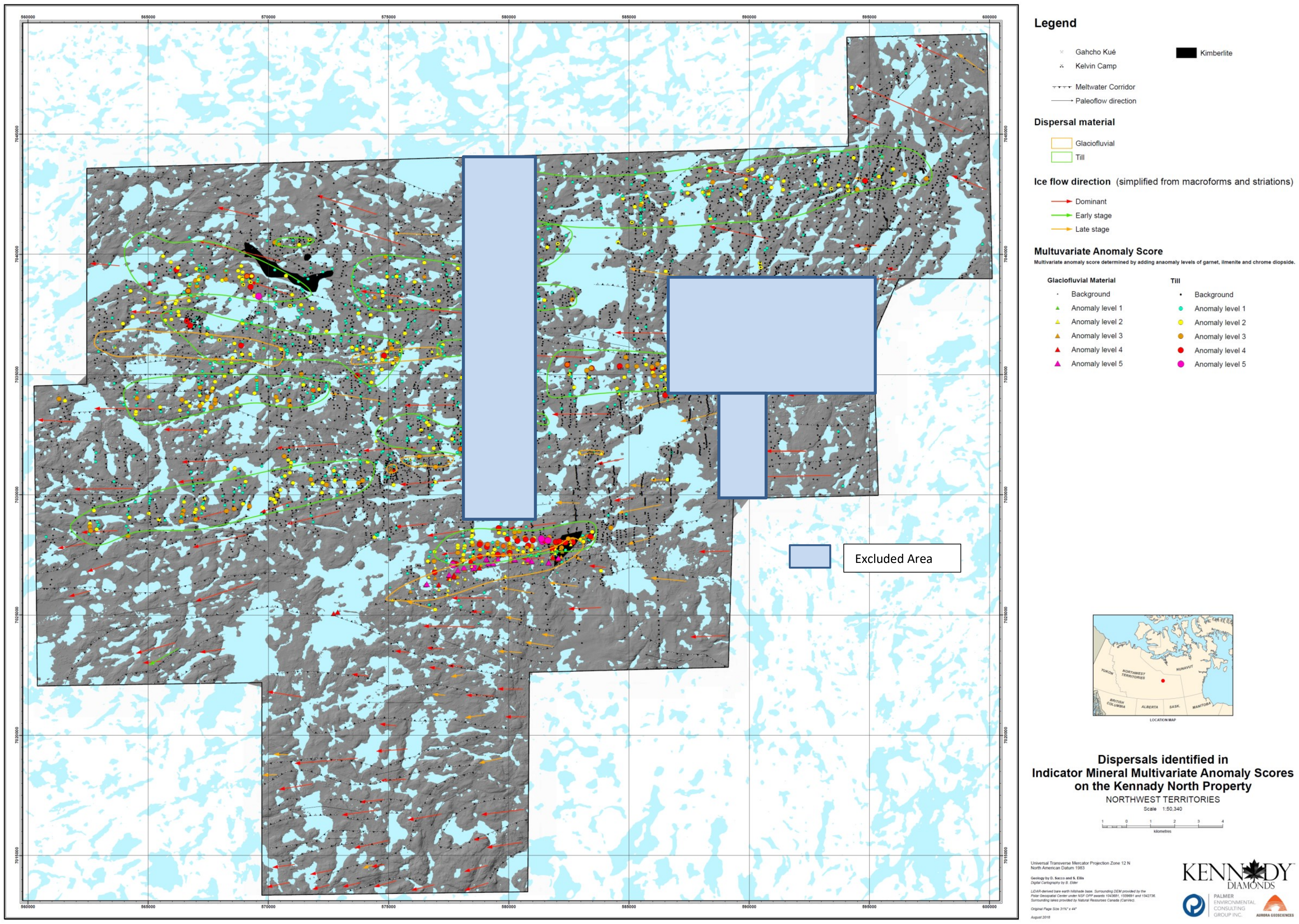

Figure 9-11. Dispersals identified with multivariate KIM anomaly scores, overlain on digital elevation model hillshade with ice-flow direction indicators and sample locations (Sacco, 2018b).

9.3.5 *Summary of surficial geology and the evaluation of KIM trains*

The overall pattern of glaciation and geomorphological processes that affected the area during deglaciation determined in this study support previous interpretations by Hardy (1997) and Knight (2017). The glacial history of the Kennady North property is complex, due to the influence of deglacial meltwater flowing through subglacial channels and into glacial lakes. Initially, subglacial till was likely deposited over the entire study area with a dominantly western transport direction. Later, till was remobilized and reworked in extensive west-trending meltwater corridors, leaving swaths of scoured bedrock, reworked till and glaciofluvial deposits. The initial western till dispersal likely shifted slightly north in the northern part of the study area and slightly south in the southern part. After ice retreat, deglacial lakes developed in many basins, including a regional interconnected system of lakes that may have inundated much of the property that is below 420 m elevation above sea level. Since deglaciation, periglacial processes have homogenized sediments and obscured much of the evidence of these events.

The surficial mapping was used to derive a till sampling suitability (TSS) map. This map can be used to guide future till sampling and assess the existing dataset of surficial sediment samples. The importance of KIM in identifying and characterizing kimberlites is well established, particularly in the Slave Province. It should be noted, however, that while the Gahcho Kué kimberlites are associated with a significant KIM train, that there is essentially no KIM train coming from the Kelvin kimberlite. Understanding the location and composition of KIM trains is a critical part of delineating any new kimberlites.

Using the newly established high-resolution surficial geology maps, the existing database of over 9700 surface sediment samples which were picked for KIMs, was re-evaluated and standardized. Five sub populations were grouped for study to statistically determine anomalous thresholds. A background level of zero KIMs was used, and thus even a single KIM grain could be important. Multivariate analysis was used to create anomaly scores for each sample, and anomaly score maps were created for till and glaciofluvial samples. Examination of the anomaly maps led to the delineation of 20 dispersal trains on the property (14 in tills and 6 in glaciofluvial sediments). These dispersal trains were qualitatively evaluated on strength and continuity. Some dispersals may actually be parts of a single large dispersal (e.g., D6, D8, D9, D13). Dispersal D17, a large train apparently associated with the Faraday complex, may actually have multiple sources. The large D17 dispersal merits further study, as earlier work identified only a very small dispersal associated with Faraday (Vivian et al., 2016).

Future work will benefit from the development of the TSS maps and it is apparent that small reverse circulation-type drilling may be beneficial in finding in-situ material in places where reworked till cover is much thicker.

Larger dispersals with the potential for multiple sources should be further evaluated. For example, the collection of till samples near bedrock, where there is a paucity of anomalies between D6, D8, D9 and D16, may identify if there is an older dispersal at depth that has been covered at surface by till of a different provenance. If an older dispersal is identified at depth, the dispersals at surface (i.e., D6, D8, D9 and D16) are likely palimpsest from the older dispersal, and therefore, from the same source. Conversely, at the D17 dispersal train, KIM dispersals identified at depth would support multiple sources.

Using the existing data, further analysis using individual indicator minerals may help identify additional dispersals with specific mineralogical signatures. Indicator minerals from the medium-grain size fraction should also be evaluated, with the assumption they are shorter-travelled, to determine whether the higher anomalies that occur in the fine-grained fraction are due to re-entrainment within the till, reworking, or an additional bedrock source.

Any future till anomaly target area will require the completion of high-resolution geophysics using gravity, OhmMapper© and total field magnetics to help delineate future drill targets at Kennady North.

9.4 Full Data Compilation – Looking Forward

The desk top work on the full data compilation across the Kennady North property has continued through 2018. Faraday Lake, Kelvin Lake and Blob Lake (Figure 9-12) comprise the three priority target areas but planning to establish exploration outside of the Kelvin-Faraday corridor has also been undertaken.

There has been significant kimberlite indicator mineral sampling of the tills. Understanding the nature and composition of the tills will help to place proper context to the location of the kimberlite indicator minerals, for example: what mechanism of transportation can be related to a specific KIM site. The study was undertaken by Palmer and with this data, KDI will focus on determining kimberlite targets across the property. The three priority target areas encompass gravity responses which are similar to those coincident with the Kelvin and Faraday kimberlites. Each larger target area hosts a number of smaller target areas (up to seven), to help focus drilling.

In particular, Faraday Lake hosts 7 smaller target areas, Kelvin Lake hosts 5 smaller target areas and Blob Lake hosts 4 smaller target areas. The gravity features inside the smaller target areas have either coincident OhmMapper© and or magnetics associated with each target. The anomalies lie along a structure trending north-northeast; but a northwest axis, orthogonal to this northeast trend, is commonly interpreted. Notably this trend is coincident with the unconventional kimberlite discoveries to date.

The prominent oblong to circular gravity low features, which occur along the primary structural trend, may represent blows (volcaniclastic features) which can be used to target unconventional kimberlite bodies.

The Blob Lake area geology is similar to the GK mine site and as such there is opportunity to see more vertically-sided carrot-type kimberlites.

This map is demonstrating the potential for delineating more resource at the Kennady North project.

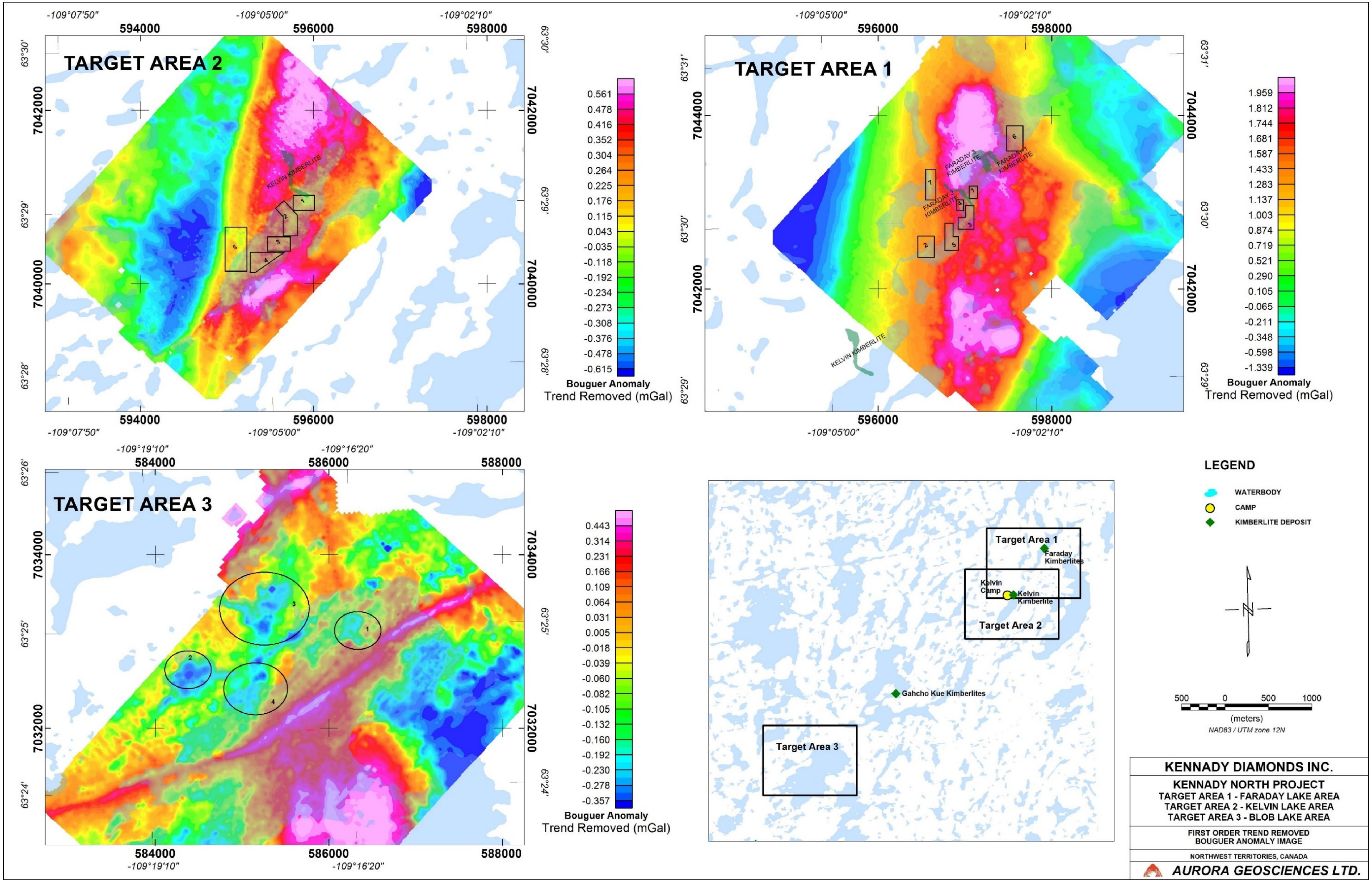

Figure 9-12. Gravity data associated with the three primary target areas for the 2019 exploration program at Kennady North

10 DRILLING

This section provides information relating to diamond drilling which was completed during 2018. Details of all drilling carried out prior to this were included in two previous Kennady North NI 43-101 compliant Technical Reports (Vivian and Nowicki, 2017; Vivian and Nowicki, 2018).

10.1 INTRODUCTION

Mountain Province Diamonds continued delineation drilling of the Faraday 2 pipe at depth to bring the entire body into an inferred resource. Drilling continued at Faraday 1-3 to evaluate the poorly understood zone between Faraday 1 and 3 but also to test the thick coherent kimberlite which makes up a significant portion of Faraday 1. This thick coherent kimberlite is part of the Faraday sheet in the Faraday 1-3 and 2 area and hosts good diamond quantities. Exploration drilling concentrated on the Faraday sheet complex to determine whether there might be some volcaniclastic kimberlite associated with geophysical targets, similar to Faraday 2 and 1-3.

Two drill holes were targeted south of the Kelvin kimberlite to test areas considered to be potential thicker sheet complexes, with a goal of intersecting volcaniclastic kimberlite. Significant drilling has been completed and filed on Sedar under Technical Reports completed by Vivian and Nowicki (January 23, 2017 and November 17, 2017). Diamond drilling during 2018 is summarized herein with detailed drill summary statistics and plan maps.

A total of 39 holes comprising 7,083 m of diamond drilling, using NQ and HQ core, were completed with kimberlite intersections totaling 496.83 m, or 12.1% of the total drilling (Table 10-1 and Figure 10-1).

Table 10-1. Diamond Drilling Summary – total metres drilled versus metres of kimberlite for 2018

Kimberlite	# of holes	NQ metres	HQ metres	metres of kimberlite
Faraday Area	16	2,220	0	36.52
Faraday 1-3	10	0	1,407	154.83
Faraday 2	11	0	3,223	296.01
Kelvin Sheet	2	233	0	9.47

Table 10.2 lists the number of holes, size of drill core and purpose for the drill hole listed at each KFC area for 2018.

Table 10-2. Diamond drilling Summary – holes, type and purpose by Area

Location	HQ holes	*HQ meters*	HQ3 holes	*HQ3 meters*	NQ holes	*NQ meters*	Purpose
Faraday (F13)	6	*703*	4	*704*	-	-	Delineation/Geotech
Faraday (F2)	8	*2,329*	3	*894*	-	-	Delineation/Geotech
Faraday Area	-	-	-	-	16	*2,220*	Exploration
Kelvin Sheet	-	-	-	-	2	*233*	Exploration
Total	**14**	***3,032***	**7**	***1,598***	**18**	***2,453***	

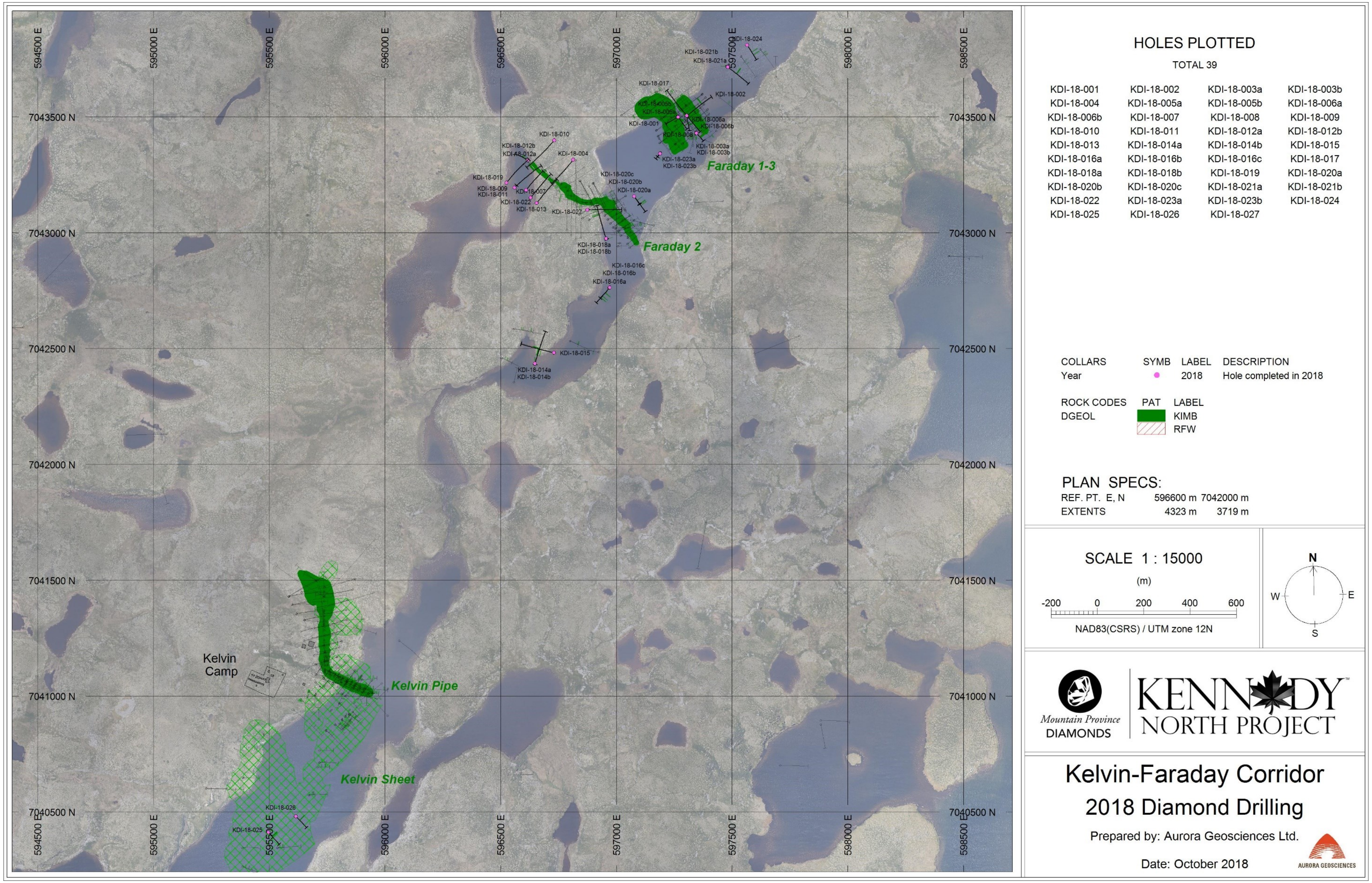

Figure 10-1. Collar Location (pink) of Drill Holes Completed at the Kennady North project in 2018

10.2 Exploration drilling at Kelvin-Faraday Corridor

The 2018 exploration drill program was focused on untested geophysical anomalies that were indicative of KFC kimberlite-type responses. The factors used in identifying drill targets are anomaly strength, coincident anomalies from other surveys and their proximity to other kimberlites, and/or the sheet complex. Targeting the anomalies was based upon the prevailing geometry of northwest dipping sheets with inclined pipes which are characteristic of the Kelvin-Faraday kimberlite cluster.

Table 10-3 is a summary of the exploration drilling completed in 2018. Two holes did not intercept kimberlite as they were terminated prior to reaching their target depth. The kimberlite intersections vary between 0.06-6.27 m in thickness and commonly occur as multiple short intervals clustered together. Only hypabyssal (coherent) kimberlite is present. Most holes have strong alteration at the contacts between country rock and kimberlite and are identified by intervals of brecciation or clay alteration. It is most likely that these altered zones explain the geophysical anomalies. The exploration drilling has extended the hypabyssal sheet complex to over 1.2 km along strike. The sheet complex likely underlies the central portion of Faraday Lake and as such may well extend up to 2 km.

The Kelvin sheet exploration drilling delineated thicknesses of 6.5 and 4.28 m in holes KDI-18-025 and KDI-18-026, respectively. No volcaniclastic kimberlite was discovered during the exploration drilling program; but the reader is reminded that 25 holes were drilled on Kelvin Lake prior to the first major intersection at the Kelvin kimberlite (estimated to contain more than 8.5 M tonnes of indicated resource).

Table 10-3. Summary of the Exploration Drill holes in the Kelvin-Faraday Corridor

Hole ID	Azimuth	Dip	Total Depth (m)	Total Kimberlite (m)	Target
KDI-18-014a	76	-88	165.45	1.13	~200-m long SW-NE resistivity low at 350 m ASL.
KDI-18-014b	17	-45	199.05	4.19	Same as previous.
KDI-18-015	283	-45	199	5.72	Same as previous.
KDI-18-016a	312	-89	119	2.94	~30-m wide circular 1.98 mGal gravity low.
KDI-18-016b	218	-65	131	2.57	~90-m long SE-NW gravity low. Minimum of 1.97 mGal.
KDI-18-016c	221	-47	122	4.82	Same as previous.
KDI-18-018a	71	-89	179	4.56	South end of ~190 m long SE-NW gravity low, with a minimum of 1.88 mGal. Adjacent to Faraday 2 pipe.
KDI-18-018b	339	-62	269	3.24	~190 m long SE-NW gravity low, weakens towards the NW. Adjacent to Faraday 2 pipe.

KDI-18-020a	145	-45	56	0	SE-NW gravity low adjacent to Faraday 2 pipe that weakens towards the NW. Minimum of 1.93 mGal.
KDI-18-020b	145	-46	116.51	1.83	Same as previous.
KDI-18-020c	145	-71	119	3.06	Same as previous.
KDI-18-021a	12	-89	126	4.37	Weak resistivity low, ~120 m to the NW of the dominant SW-NE low resistivity trend that runs through Faraday Lake.
KDI-18-021b	126	-46	152	5.02	~600 Ohm-m resistivity low at 350 m ASL along dominant SW-NE low resistivity trend through Faraday Lake.
KDI-18-023a	220	-48	27	0	2.03 mGal gravity low with weak SE-NW trend adjacent to Faraday 1-3.
KDI-18-023b	220	-76	119	0.96	Same as previous.
KDI-18-024	145	-56	121	1.41	Coincident DIGHEM anomaly and ground magnetics low.
KDI-18-025	136	-55	119	6.5	Resistivity low towards SE end of Kelvin sheet.
KDI-18-026	135	-56	113.91	4.28	Resistivity and bathymetric low at SE end of Kelvin sheet.

10.3 Diamond drilling at the Faraday 1-3 kimberlite

A total of six holes, drilled from three collars, delineated the area in between the Faraday 1 and Faraday 3 pipes (Table 10-4 and Figure 10-2). The objective of these holes was to better define the hypabyssal kimberlite (HK) sheet system. The thicknesses of the hypabyssal kimberlite intercepts range from 0.15 m -12.36 m along hole; this aligns with the results of both previous drilling by KDI and a nearby historic drill hole. More volcaniclastic kimberlite was intercepted than anticipated, particularly on the southwest side of Faraday 1 (holes KDI-18-003a and KDI-18-006b). The thickness of the volcaniclastic kimberlite intercepts range from 0.67 m -17.11 m along hole.

Table 10-4. Drill Summary at Faraday 1-3 kimberlite

Hole ID	Azimuth	Dip	Total Depth (m)	Total Kimberlite (m)	Results
KDI-18-003a	298	-89	91	25.77	VK & CK intercepted. SW edge of the F1 pipe extended.
KDI-18-003b	138	-55	79	16.25	Collared into relatively thick CK intercept. No VK.
KDI-18-005a	290	-90	152	25.13	VK intercepted. Minor increase to F3 pipe.
KDI-18-005b	142	-61	130	6.21	VK and CK intercepted. Minor increase to F3 pipe.
KDI-18-006a	231	-90	128	19.64	VK w/ minor CK intercepted. Minor increase to F1 pipe.
KDI-18-006b	141	-43	123	24.38	VK & CK intercepted. SW edge of the F1 pipe extended.

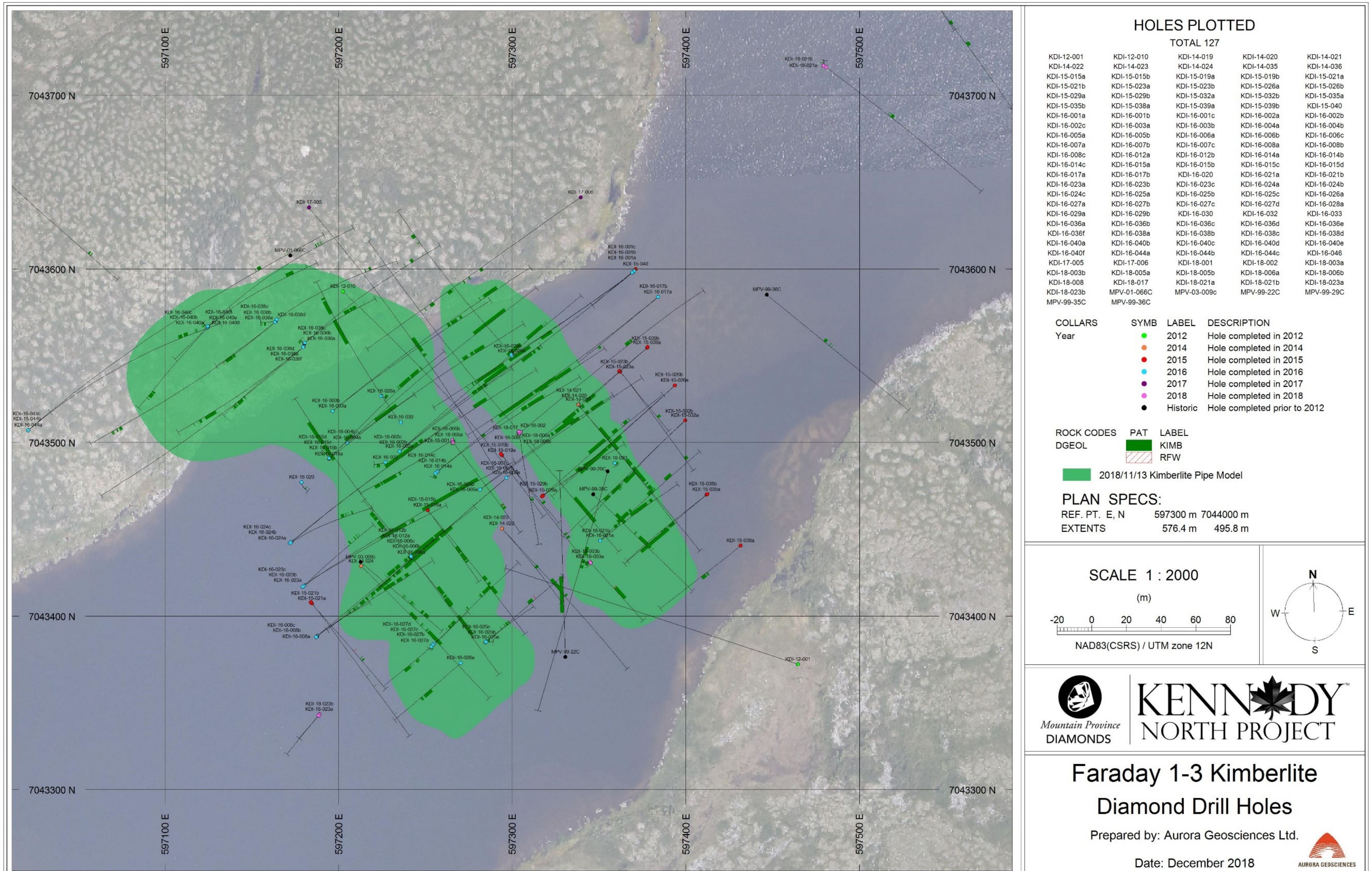

Figure 10-2. Drill Plan Map of Faraday 1-3 for 2018

10.4 Diamond drilling at the Faraday 2 kimberlite

During 2017, the Faraday 2 body was extended an additional 150 m in strike towards the northwest. The drilling comprised a series of one -90° and three -80° dip holes oriented along strike of the body (KDI-17-002a and 002b, 004 and 006) (Figure 10-3). Only two holes were drilled fully across the pipe from northeast to southwest to help constrain the body in 3-D space. This portion of the kimberlite could not previously be used for resource modelling due to the lack of delineation drilling.

In 2018, the primary aim was to delineate the extension of the Faraday 2 and include this extension in the resource estimate for the Kennady North property. Table 10-5 summarizes the 2018 holes used to help delineate the extension for inclusion in an inferred resource estimate and Figure 10-4 is a plan map documenting the drill program.

Table 10-5. Drilling summary of Faraday 2 delineation drill holes

Hole ID	Azimuth	Dip	Total Depth (m)	Total Kimberlite (m)	Results
KDI-18-004	218	-67	322	21.75	Intercepted pipe mid-way down NE side. Continuous pipe-infill kimberlite.
KDI-18-007	40	-65	328	49.81	Intercepted pipe near upper edge. Continuous pipe-infill kimberlite.
KDI-18-009	39	-67	33.4	0	Hole abandoned.
KDI-18-010*	221	-66	346	49.46	*Geotech hole. Kimberlite intercept includes 7.4-m of country rock that was not sub-divided in field logging. Upper kimberlite intercept is likely near top of pipe. Two intervals of pipe-infill kimberlite separated by in-situ wall rock.
KDI-18-011	44	-66	350	31.22	Re-attempt of 009. Intercepted pipe mid-way down SW side. Continuous pipe-infill kimberlite.
KDI-18-012a	27	-88	334	27.42	Pipe-infill VK separated by intercept of in-situ wall rock. Thin HK sheets below pipe zone.
KDI-18-012b	302	-79	317.14	0	No kimberlite, pipe has turned or plunged abruptly.
KDI-18-013*	38	-67	319	28.05	*Geotech hole. Intercepted pipe mid-way down SW side. Thin HK sheets above pipe zone. Continuous intercept of pipe-infill kimberlite.
KDI-18-019	39	-66	337	10.04	Clipped base/edge of pipe. Thin HK sheets below pipe zone.
KDI-18-022	39	-69	307	44.87	Intercepted pipe near upper edge on SW side. Continuous pipe-infill kimberlite.

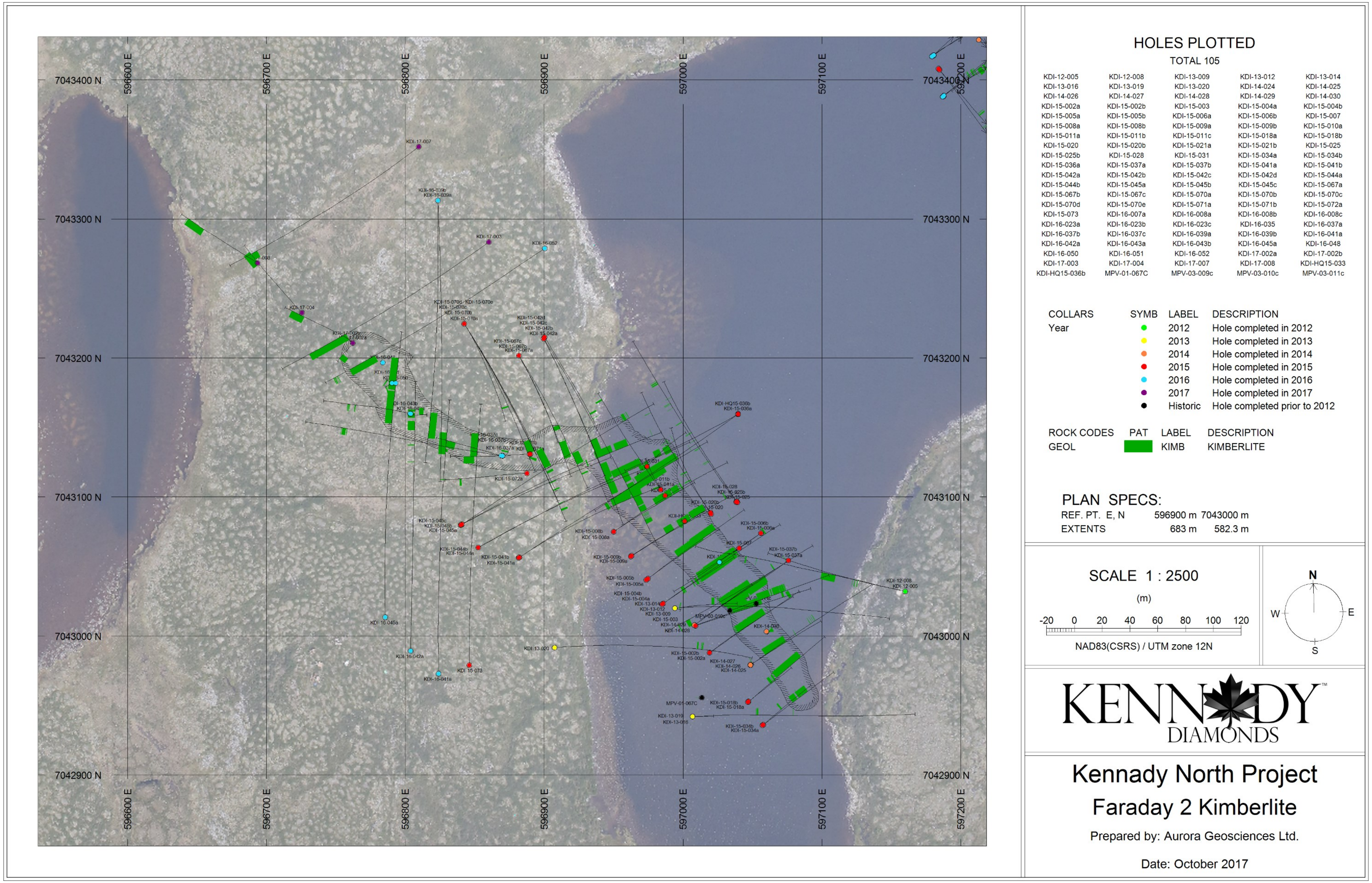

Figure 10-3. Plan Map of Faraday 2 Drilling - 2017

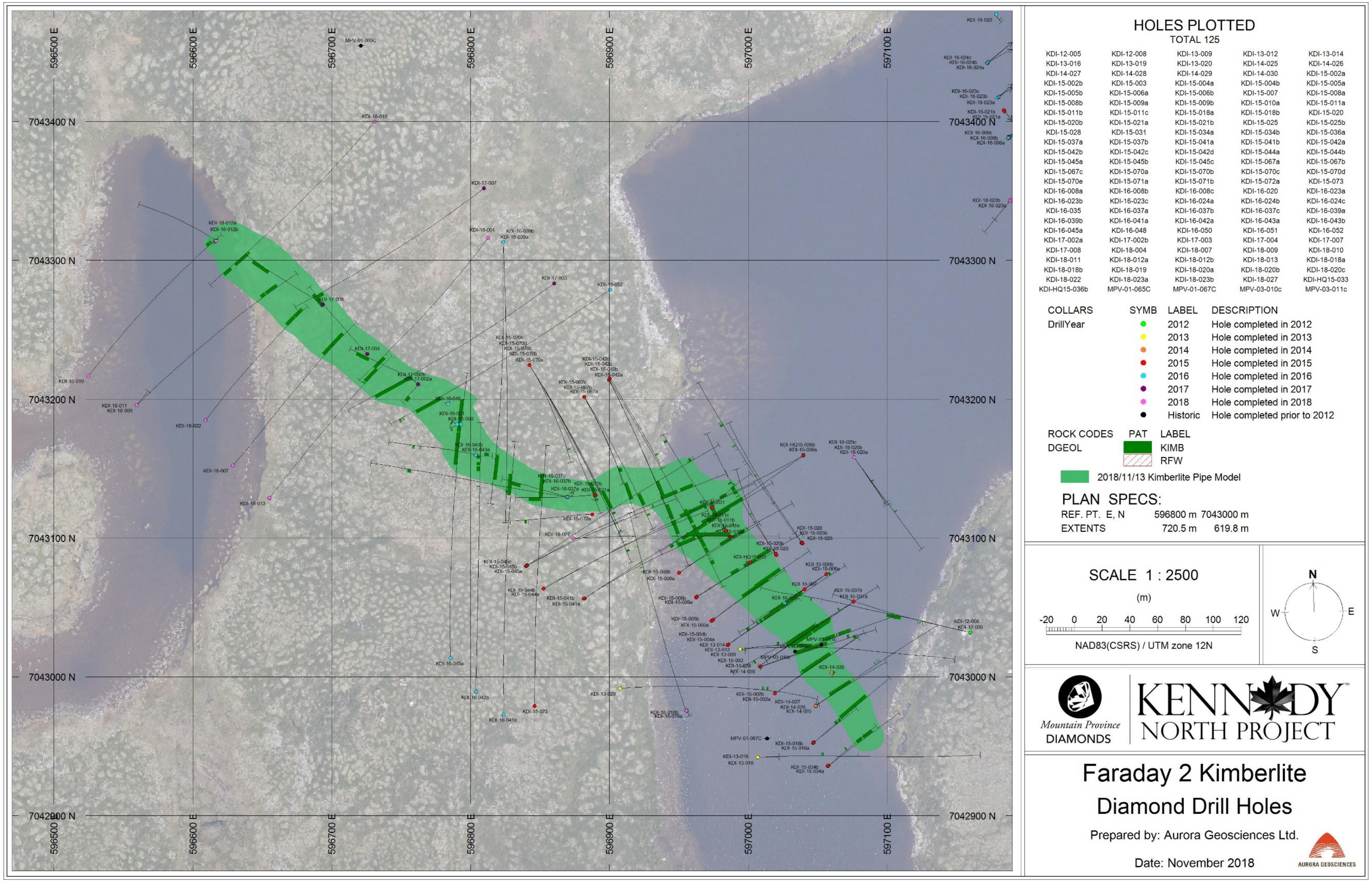

Figure 10-4. Plan Map of Faraday 2 Drilling – 2018.

The 2018 drilling was used to create a robust 3D geological model. To accomplish this, seven inclined holes perpendicular to the inferred trend of the pipe were completed to define its width. Lake-based holes on the southwest side of the pipe were prioritized over the land-based holes on the northeastern side; five holes were drilled from the southwest towards the northeast (KDI-18-007, 011, 013, 019, 022) and two holes were drilled from the northeast to the southwest (KDI-18-004, 010). Hole KDI-18-009 was abandoned due to the drill string becoming wedged in the casing.

The kimberlite intercepts in the perpendicular delineation holes correspond well with the results of the 2017 drilling. The extension of the pipe is a slightly-inclined tube with a width of 40 m and height of 50 m.

Two holes, KDI-18-012a and b were used to investigate the continuance of the pipe towards the northwest. KDI-18-012a was a vertical hole, collared approximately 30 m past the last known occurrence of kimberlite, and intersected narrow intercepts of kimberlite and a 9 m slab of country rock. It is interpreted that this hole skimmed along the edge of the pipe rather than cutting through it. The second hole and same collar, KDI-18-012b, was targeted at -80° dip oriented along the projected extension of the pipe. There was no kimberlite intercepted and it is interpreted that the pipe has most likely swung to the north or has plunged significantly.

Section 14 comprises the update to the inferred resource at Faraday 2 at the Kennady North property.

11 SAMPLE PREPRATION, ANALYSES AND SECURITY

11.1 DIAMOND DRILL CORE SAMPLING and SECURITY

Logging of diamond drill core was completed using a standard operating procedure (SOP) for each drill program.

All core was moved from drill shack to camp via helicopter or snowmachine. The core was arranged in the core shack. A geotech would ensure core was in order, broken pieces reassembled, core boxes were marked properly with meterage markers and labels. Total Core Recovery (TCR) in metres, Rock Quality Designation (RQD) in metres, and magnetic susceptibility readings were collected, and the information was stored in the core database for each drill hole. The core was then quick logged by the geologist using simple designations such as overburden, country rock and kimberlite. This information was passed on nightly to the Project Manager in Yellowknife.

The logging geologist would then log the core; recording lithology (accurate to 0.01 m), structure, alteration; and within kimberlite intersections estimated macrocrysts and xenoliths and marked sample designations for representative samples.

Photos of dry core were taken before and after logging. The core was not wetted for the photos to prevent kimberlite from deteriorating. Close-up photos were also taken to record notable features in greater detail.

Downhole surveys were run upon completion of the drilling and prior to pulling rods. During 2012-2013, an Icefields Gyro® tool was used; replaced by a Reflex GYRO™ tool for 2014 - 2016 and then for 2017 and 2018, a Champ Navigator™ Tool from Axis Mining Technology was used.

The field geologist would send the full kimberlite intersection into town with at least two core boxes of country rock core above and below the kimberlite intersection. Core was transported via aircraft from camp to a secure warehouse at the Yellowknife Airport. The airport warehouse facilities are owned by Great Slave Helicopters.

At the Yellowknife warehouse, detailed logging was initiated using hand written descriptions of rock type code, core colour, mineralogy, grain size, foliation or texture with variability noted by percentage over core length, alteration plus any other observations. A graphic log was produced by hand with rock codes.

All data was then entered into a digital entry form.

11.1.1 *Diamond Drill Core Sampling for Microdiamond Analyses*

The geologist ensured lithological breaks were clearly marked with red flagging tape and samples are collected consecutively from top to bottom respecting lithological breaks. Country rock (CR) fragments less than 1 m are included in the kimberlite sampling, whereas CR intersections between 1-3 m are considered separate units and CR samples greater than 3 m are left in the box and stored.

Each sample was generally between 8-8.5 kg but smaller samples occur in order to respect lithological boundaries. Samples are identified with sequential sample numbers and contain depth interval, texture, 3D model code designation, comments and sample weight, with all data recorded on a sample sheet. Hole number and sample interval are recorded in sample booklet.

Samples are placed in a plastic 20 litre bucket with 1 or 2 other samples. Sample buckets are marked with hole number, sample numbers and bucket # and secured with three metal security tags. All pail weights and security tag numbers are recorded, and pails are stacked on pallets two high. All sample data is entered into a Microsoft® Access digital database.

Once a shipment was ready to go, the required chain of custody, analysis request and sample list paper work was completed and submitted to the receiving laboratory and samples were shipped from Yellowknife to the appropriate lab by Aurora expediting staff.

11.1.2 *Drill Core Sample Shipments and Security*

Chain of custody paperwork is filled out which is submitted with the sample shipment, in a closed and locked trucking van. More detailed standard operating procedures (SOPs) for lithological and geotechnical logging, and sampling for microdiamond analyses (using caustic fusion) have been designed by SRK Consulting.

Samples are shipped to Saskatchewan Research Council's Geoanalytical Lab in Saskatoon, SK.

11.1.3 *Caustic Fusion Analysis of Diamond Drill Core*

Processing information in this section was provided by the Saskatchewan Research Council (SRC) Geoanalytical Laboratory and is documented in Figure 11-1. The caustic fusion process begins with 75 kg of virgin caustic (NaOH) in a 40 litre furnace pot. An 8 kg sample is then loaded on top of the caustic, followed by bright yellow synthetic diamonds, 150 to 212 µm (micrometres) which are used as a spike.

The furnace pot is heated in a kiln to 550°C for 40 hours then removed and allowed to cool. The molten sample is poured through a 106 µm screen, which is then discarded after use. Micro-diamonds and other

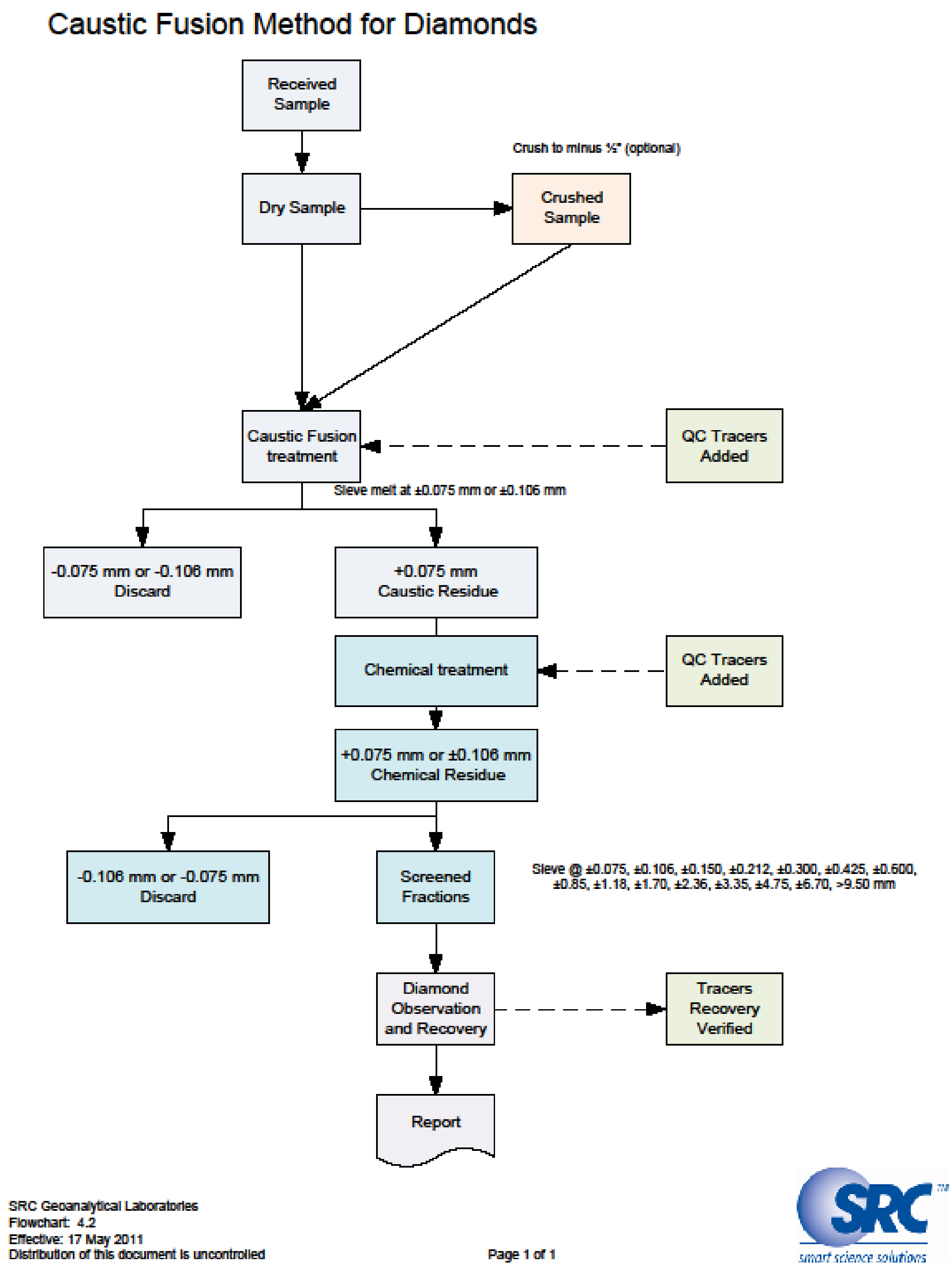

Figure 11-1. Caustic Fusion Analysis Flow Sheet

insoluble minerals (typically ilmenite and chromite) remain on the screen. The furnace pot is then soaked with water to remove any remaining caustic and micro-diamonds. The water is poured through the same screen.

Additional steps are required to remove ilmenite, chromite and other materials from the concentrate. The samples are sent to the "wet" lab where acid is used to neutralize the caustic solution. The residue is then rinsed and treated with acid to dissolve readily soluble materials.

Samples are then transferred to a zirconium crucible along with bright yellow synthetic diamonds as a spike and fused with sodium peroxide to remove any remaining minerals other than diamond from the sample. The sample is allowed to cool and then decanted through wet screens to divide and classify the recovered diamonds. Stones are stored in plastic vials filled with methanol.

12 DATA VERIFICATION

12.1 MICRODIAMOND SAMPLES – DRILL CORE

All drill core sent for caustic fusion diamond analysis to the SRC is subjected to the process outlined in Figure 11-3. The fusion residues are held at SRC while the recovered diamonds are sent to KDI for storage and reference. The SRC spikes the samples for quality control and have a recovery rate of these spikes of over 99%, for the KDI samples. This efficiency is extremely high and as such the microdiamond recoveries are considered reliable. The SRC Diamond Services Lab is ISO 17025 accredited for caustic fusion.

Every sample is picked by a trained technician and the residue is re-picked by a senior technician to ensure that all diamonds have been recovered. The senior technician then signs off on the sample. All technicians are required to take annual retraining. New technicians are trained by picking spikes, first under supervision, for up to four months.

There are seven container transfers and two screenings during the caustic fusion procedure. This increases the risk of losing diamonds. The QC procedures are in place to minimize any potential loss of stones. A designated QC Manager is in charge of all QC documentation at SRC.

12.2 DRILL DATA

Drill collars were located in 2012 and 2013 using a Trimble® GeoXT™ DGPS with sub-metre accuracy and using a Trimble® GeoHT™ DGPS with sub-30 cm accuracy in 2014. From 2015 -2018, a Leica GS15 RTK GPS was used with horizontal accuracy of +/- 2 cm and a vertical accuracy of < 5 cm.

Downhole surveying during 2012 was a problem as the Icefields gyro tool arrived late and the first four holes were completed using just acid tests. The dip of these holes would be considered to be low confidence estimates. Once the Icefields tool arrived onsite, the final drilling of 2012 and all of 2013 was completed using this tool. The Icefields tool was not equipped to handle vertical surveys so the confidence level for vertical holes is not high. We had significant technical issues with the Icefield tool during 2013 and as such we switched to the Reflex Gyro tool in 2014.

All drilling in 2014, 2015 and 2016 was surveyed using the Reflex gyro tool with essentially no issues and a high confidence in accuracy. Drill holes in 2017 and 2018 have been surveyed using the Champ Navigator Tool from Axis Mining Technology.

The drill survey data, both collar and down-hole, are considered to be of high confidence.

Drill hole data which was used for volume and tonnage estimates was verified by both Aurora Geosciences Ltd. and SRK Consulting in the following manner:

i) Verification of collar data was confirmed against the printed data from the DGPS survey tool and the original data and reports from our survey technician.

ii) Downhole data was checked against original data and print-outs from the downhole survey tools and bad data points were removed.

iii) The end of hole points were checked with original drill log data, driller's time sheets, printed detailed core logs and core photos showing the end of every hole.

iv) Downhole meterage was confirmed with photos, detailed drill logs and geotechnical logs. There were no discrepancies identified.

All drill hole data is compiled in a Microsoft® Access database which is stored on server at site, in Yellowknife and a copy with KDI in Toronto.

12.3 DENSITY DATA

The majority of the bulk density data for Kelvin and the Faraday kimberlites were collected on-rig and tested immediately after being recovered (with lag-times of less than 12 hours). These samples were measured in-field using a water displacement balance-method and are considered to be near *in situ* measurements. Additional independent testing of bulk density has included:

1. Field sampling for strength testing of rock (uniaxial and triaxial) which was completed at Queens University Laboratory (Kingston, ON) and resulted in precision measurements on cylinders of rock (n = 10) which included the sample densities.

2. To determine the density of air-dried kimberlite, a mass/volume method was implemented for Kelvin using large core pieces of typically 0.6 m length, with more than 4 months of air-drying, using right-angle sawn kimberlite (n = 70, approximately 200 kg total core weight).

These different approaches have produced data that are extremely similar for equivalent material, suggesting that bulk density is well constrained. Two approaches were used to verify that moisture content is not an issue in bulk density for samples measured using approach (1) above. This included oven-drying (105°C for 24 hours) 20 samples from Kelvin and measuring bulk density on an additional 90 samples from Kelvin that had been dry stored for 2 years. Results of this testing confirm that the bulk density results generated by method (1) above can be adopted as dry bulk density as moisture is not a significant component. In conjunction with the very large and spatially representative datasets available, the QA/QC measures adopted have verified that the bulk density data are reliable.

13 MINERAL PROCESSING AND METALLUGICAL DATA COLLECTION

There was no reverse circulation drilling completed during 2018 and no dense media separation (DMS) analysis was completed. The only mineral processing completed during 2018 was caustic fusion analysis of diamond drill core and is summarized in Section 11.

Information regarding previous DMS sampling and processing can be reviewed in previous reports by Vivian and Nowicki (2016) and Vivian and Nowicki (2017).

14 MINERAL RESOURCE ESTIMATES

14.1 INTRODUCTION

A Mineral Resource estimate for the Kennady North Property was established on January 24, 2017 (Vivian and Nowicki) and updated on November 17, 2017 (Vivian and Nowicki). The resource at November 17, 2017, is listed in Table 14-1.

Table 14-1. Mineral Resource Statement at November 17, 2017.

Resource Classification	Body	Volume (Mm^3)	Density (g/cm^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mct)	Value (US$/ct)
Indicated	Kelvin	3.49	2.44	8.5	1.6	13.62	63
Inferred	Faraday 3	0.76	2.47	1.87	1.04	1.9	75

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect accuracy of the estimate.
2. Mineral resources are quoted above a +1.0 mm bottom cut-off and have been factored to account for diamond losses within the smaller sieve classes expected within a commercial process plant.
3. Indicated mineral resources are estimated, based upon quantity, grade or quality, densities, shape and physical characteristics, with sufficient confidence and detail to support mine planning and evaluation of the economic viability of the deposit. Indicated resource classification was provided November 17, 2017 (Vivian and Nowicki).
4. Average diamond value estimates for Kelvin and Faraday 3 are based upon a valuation model provided by WWW International Diamond Consultants Ltd in July 2017.

There is a small target for further exploration (TFFE) estimated for a small portion of Faraday 2 which has not been properly classified and Faraday 3. The TFFE as listed at November 17, 2017 (Vivian and Nowicki) is listed in Table 14-2.

Table 14-2. TFFE Estimate for the Kennady North Property - November 17, 2017

Body	Volume (Mm^3)		Tonnes (Mt)		Grade (+1 mm cpt)	
	Low	High	Low	High	Low	High
Faraday 1	0.2	0.5	0.6	1.2	1.5	3.7

The estimate of TFFE is conceptual in nature as there has been insufficient exploration to define a Mineral Resource and it is uncertain if future exploration will result in the estimate being delineated as a Mineral Resource.

During 2018, additional drilling was completed on the NW extension of the Faraday 2 kimberlite pipe. This drilling was used to enhance our geological model in this area, to use the microdiamond analyses and detailed petrography work to add to the inferred resource already established.

14.2 FARADAY 2 MINERAL RESOURCE ESTIMATE

14.2.1 *Introduction*

The 2019 mineral resource update for the Faraday 2 Kimberlite Deposit follows on from an October 2018 updated geological model that incorporates 2017 and 2018 diamond drill holes ("DDH") delineating an approximate 150 m strike extension to the northwest, and related additional microdiamond sampling conducted within this extension (Figure 14-1). No additional bulk sampling has been conducted at Faraday 2 since 2017. Figure 14-2 provides an overview of the 2017 large diameter drill holes ("LDDH") used for bulk sampling and macrodiamond analysis.

The full scope of the 2019 mineral resource update for Faraday 2 has incorporated the following components:

- An updated geology model incorporating an approximate 150 m northwest strike extension.
- Assessment of average bulk density per internal geological domain.
- Additional microdiamond sampling and analysis within the Faraday 2 Extension.
- Revision of diamond size frequency distribution and revised estimates of average diamond grade for the four dominant kimberlite domains within Faraday 2.
- Estimation of the average diamond value (US$ per carat) for each domain, based on revised diamond size frequency distribution and February 2019 re-pricing of existing diamond parcels collected by 2016 and 2017 bulk sampling of Faraday 2 (Figure 14-2).

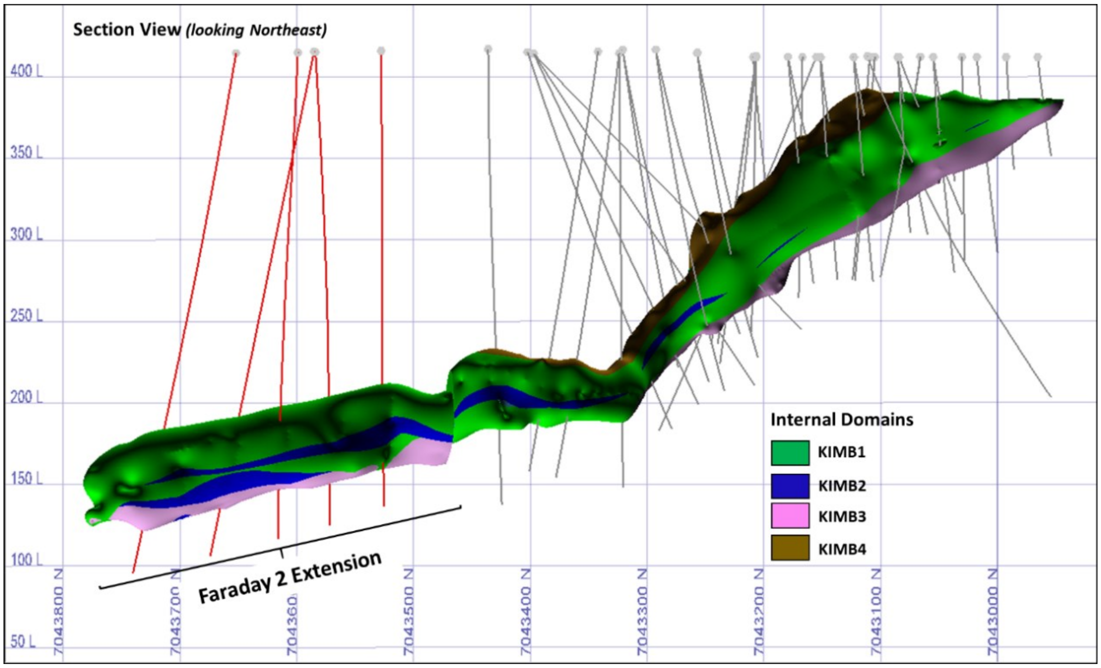

Figure 14-1: Location map of diamond drill holes sampled for microdiamond analysis. Additional holes sampled in 2018 are highlighted in red.

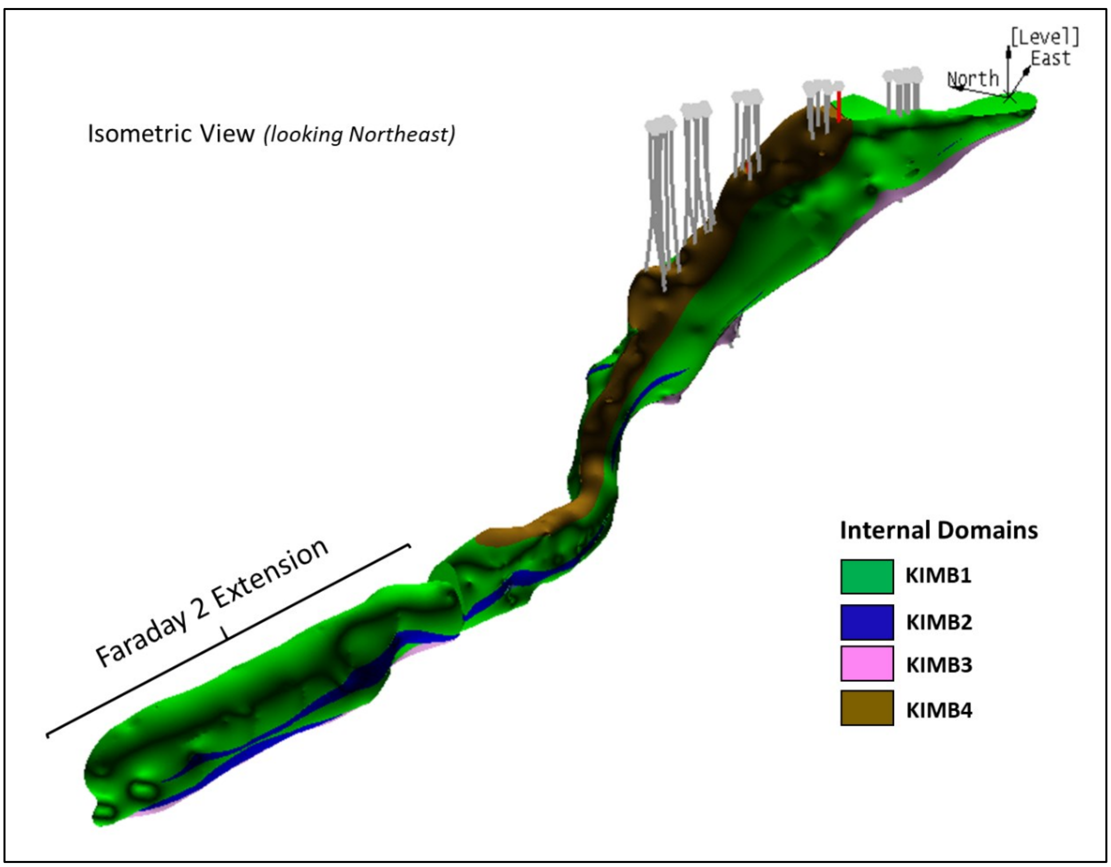

Figure 14-2: Location map of 2016 and 2017 LDDH Bulk Sample Holes. Two LDDH's completed in 2016 are highlighted in red.

14.2.2 *Resource Domains and Volumes*

The internal geological model for Faraday 2, as discussed in Section 7.3.5, is comprised of five main kimberlite domains as listed in Table 14-3. KIMB1 accounts for almost 70% of the total volume of the Faraday 2 kimberlite. Volumetrically minor occurrences of internal waste are distributed throughout the Faraday 2 body and are recognized as barren country rock material. The KIMB5 domain has also been treated as internal waste due to lack of bulk sample data to support grade estimation for this unit.

Table 14-3: Volumes of Faraday 2 kimberlite domains

DOMAIN	VOLUME (Million m^3)	VOLUME (% of total)
KIMB1	0.61	69.6
KIMB2	0.13	15.3
KIMB3	0.08	8.7
KIMB4	0.04	5.1
KIMB5	0.007	0.8
INTERNAL WASTE	0.005	0.6
TOTAL	**0.88**	

14.2.3 *Bulk Density*

A total of 811 bulk density measurements have been collected from drill core within Faraday 2, of which 250 are located within the lower extension of the kimberlite body. Global average dry bulk densities for each internal domain used in previous mineral resource estimates are summarized in Table 14-4. As reported in an internal study completed by SRK in 2016, the predominant methodology used to measure insitu density was conducted in the field using the water displacement method. Comparison of multiple density measurement techniques (including lab testing and verification) conducted on the nearby Kelvin kimberlite, demonstrated that the field measurements were reliable estimates of dry bulk density.

Table 14-4: Average dry bulk densities for Faraday 2 kimberlite domains

DOMAIN	NUMBER OF SAMPLES	DRY BULK DENSITY (t/m^3)	STD DEV
KIMB1	505	2.35	0.09
KIMB2	130	2.43	0.10
KIMB3	58	2.37	0.11
KIMB4	76	2.41	0.16
KIMB5	15	2.42	0.07
INTERNAL WASTE	27	2.75	0.19

As noted in previous studies, there appears to be a gradual increase in bulk density with depth as depicted in Figure 14-3 for the KIMB1 domain. However, this increasing trend is considered relatively insignificant, and therefore previous global averages for domain bulk densities remain unchanged for the 2019 mineral resource update.

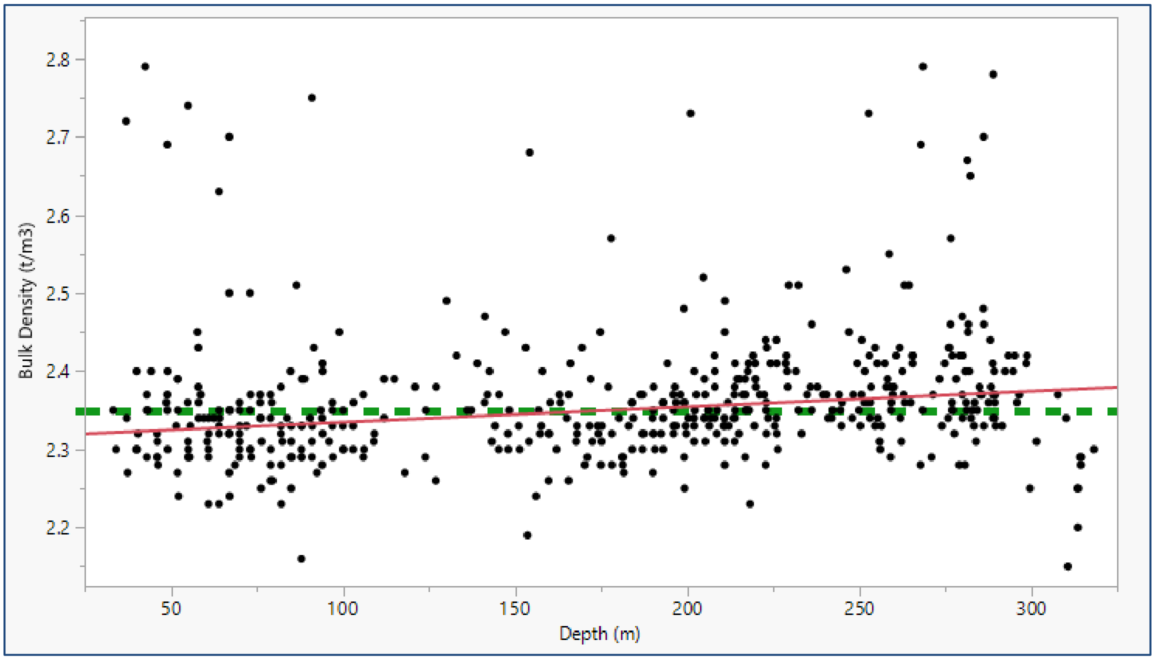

Figure 14-3: KIMB1 bulk density measurements plotted by depth from surface elevation.

Note: The global average bulk density value of 2.35 t/m^3 is plotted in the dashed green line. The linear increasing trend in density with depth is depicted in the solid red line.

14.2.4 *Grade Estimation*

Global grade estimation for Faraday 2 has been conducted by first establishing a total diamond content curve for each kimberlite domain using microdiamond data and macrodiamond data, collected from diamond drill core and the 2017 large diameter bulk sample holes, respectively. Secondly, recovery factors are applied to the lower size fractions of the diamond size frequency distributions to account for diamond losses and plant inefficiencies associated with a commercial processing facility. Recovery factors are adjusted based on a proposed +1.0 mm square bottom size cut-off for commercial diamond recovery.

Incorporation of the Faraday 2 Extension into the mineral resource is based on the comparison of microdiamond data populations within the extension area to microdiamond populations within the upper portion of Faraday 2. Similarities in microdiamond populations, relative to stone density and size frequency distribution ("SFD"), provide support for assuming grade continuity exists between kimberlite domains within the upper and extension areas of Faraday 2.

Global grade estimates have been produced for Faraday 2 due to insufficient data available to support local grade estimation. The 2016 bulk sampling campaign produced mixed-domain data and less than 10% of available macrodiamond data by carat-weight, and for these reasons are not included in the current assessment.

14.2.4.1 Macrodiamond Data Summary

A cross section showing the location of the 2017 LDDH bulk sample holes with sample intervals color coded by internal kimberlite domain is provided in Figure 14-4. Bulk sampling has only been

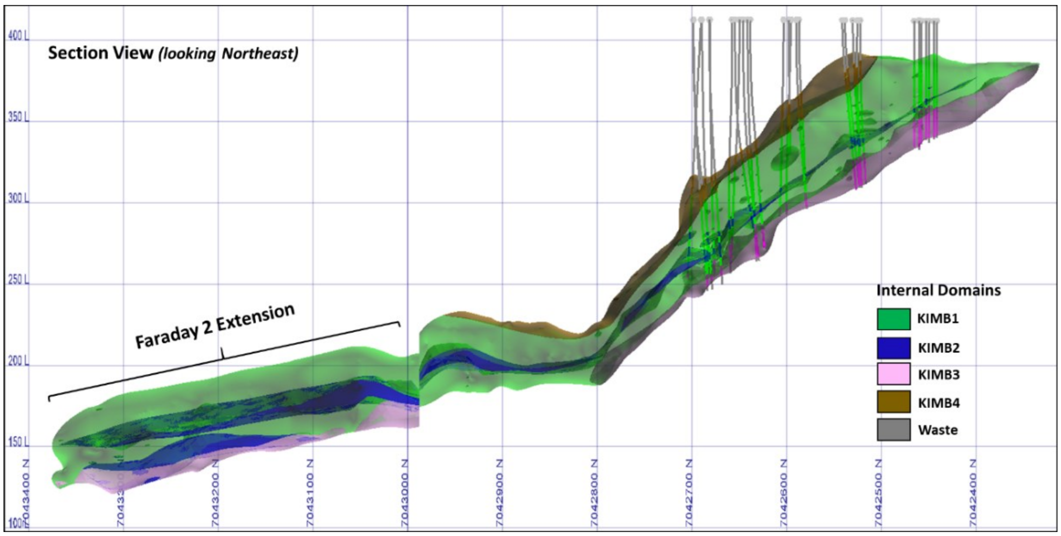

Figure 14-4. 2017 LDDH location map and bulk sample distribution per kimberlite domain.

conducted within the upper portion of Faraday 2. Allocation of sample intervals to internal geology was conducted in the field through visual analysis of drill chips with the intent to minimize cross-contamination between domains and minimize inclusion of external waste. Where external waste was incorporated into a bulk sample, this material weight has been removed from the total bulk sample weights as summarized in Table14-4. Some cross-contamination of internal domains has occurred in the bulk sample groupings, the most significant of which is observed within KIMB2. Approximately 30-40% of the KIMB2 bulk sample tonnage appears to come from adjacent domains, predominately KIMB1. The remaining domain bulk sample groupings for KIMB1, KIMB3 and KIMB4 are comprised of 5 to 10% of cross-contaminated material.

Table 14-5 provides a summary of the bulk sample data for each kimberlite domain used for grade estimation. The relative bulk sample size for each domain is reflective of the domain volume within the upper portion of Faraday 2; i.e. KIMB1 is proportionally the largest internal domain and has the largest bulk sample where as KIMB2 is proportionally the smallest internal domain within the upper portion of Faraday 2 and has the smallest bulk sample. However, the Faraday 2

Extension is comprised of a significantly larger proportion of KIMB2 material and globally makes this unit the second largest domain within Faraday 2 (refer to Table 14-3).

Figure 14-6 provides a comparison of the macrodiamond SFD curves for the bulk sample results per domain. As can be seen in this comparison, KIMB1 and KIMB4 have similar bulk sample SFDs, whereas KIMB2 and KIMB3 appear to be similar. Also, KIMB1and KIMB4 appear to show slightly coarser SFDs compared to the other two domains. However, given the relatively small bulk sample sizes for KIMB2, KIMB3 and KIMB4 (i.e. 22, 56 and 43 tonnes, respectively) the raw bulk sample SFD plots for these domains should be viewed with caution. It is probable that these small bulk samples are not providing an accurate representation of the diamond content within the larger diamond size classes.

Table 14-5. Faraday 2 bulk sample summary per kimberlite domain.

	KIMB1			KIMB2		KIMB3		KIMB4
Sieve Class (DTC)	**Stones**	**Carats**	**Stones**	**Carats**	**Stones**	**Carats**	**Stones**	**Carats**
+23	0	0	0	0	0	0	0	0
+21	1	4.28	0	0	0	0	0	0
+19	7	18.68	1	2.37	1	2.00	1	2.69
+17	8	10.84	0	0	4	5.08	1	1.48
+15	8	7.96	0	0	1	1.16	3	3.09
+13	25	21.22	6	5.48	16	12.40	4	4.28
+12	25	13.97	6	3.28	13	6.96	1	0.51
+11	132	46.03	32	10.78	46	15.29	18	5.94
+9	265	51.84	44	8.29	129	24.51	40	7.87
+7	334	40.45	84	10.14	165	19.88	45	5.77
+5	1287	83.81	257	16.88	684	43.11	225	14.07
+3	1285	41.46	248	8.19	684	21.88	252	8.02
+1	1096	19.76	144	2.65	791	13.58	256	4.54
-1	64	0.56	0	0	88	0.79	19	0.19
TOTALS	**4537**	**360.86**	**822**	**68.07**	**2622**	**166.64**	**865**	**58.45**
Sample Weight (tonnes)	154			22		56		43
Carats per tonne (cpt, +0.85 mm bottom cut-off)	**2.35**			**3.09**		**2.99**		**1.36**

Note: Table 14-5 excludes de-grit audit results and bulk samples were processed using a 0.85 mm cut-off.

Additional bulk sampling will be required to improve the confidence in SFD estimation for the Faraday 2 internal domains.

The 2017 bulk samples were processed at the Saskatchewan Research Council (SRC) located in Saskatoon, Saskatchewan, using a conventional DMS recovery plant and a bottom cut-off of 0.85 mm. Upon completion of processing the Faraday 2 bulk samples, it was noted that de-grit screens used during the processing of these bulk samples lost a significant number of stones within the smaller size fractions based on an audit conducted on the material passing through the de-grit screens. However, as depicted in Figure 14-6: KIMB1 macrodiamond comparison showing addition of de-grit audit sample results, the lost stones were predominately contained within the -1 to +3 DTC size fractions and have no significant impact on total diamond content interpretation as these smaller macrodiamond size fractions are typically not used to constrain a total diamond content model. Therefore, no adjustment to the original bulk sample results was warranted based on the de-grit audit results.

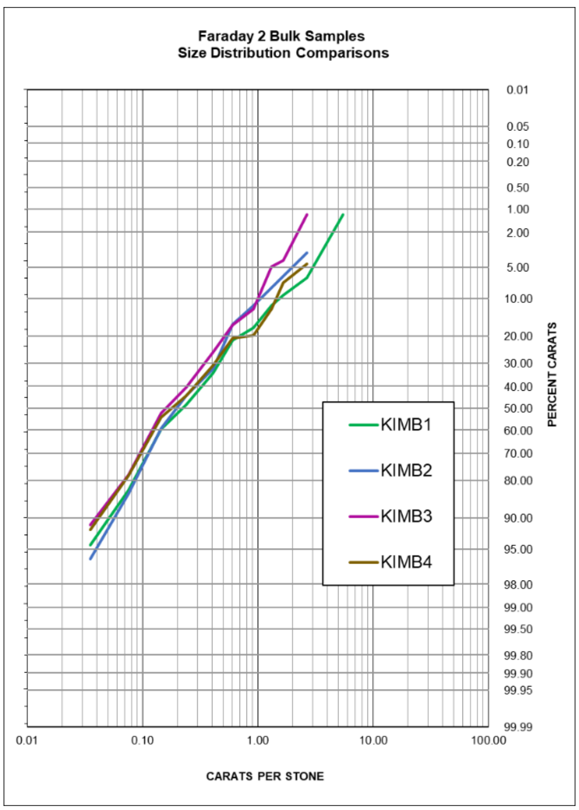

Figure 14-5. 2017 bulk sample cumulative SFD comparison

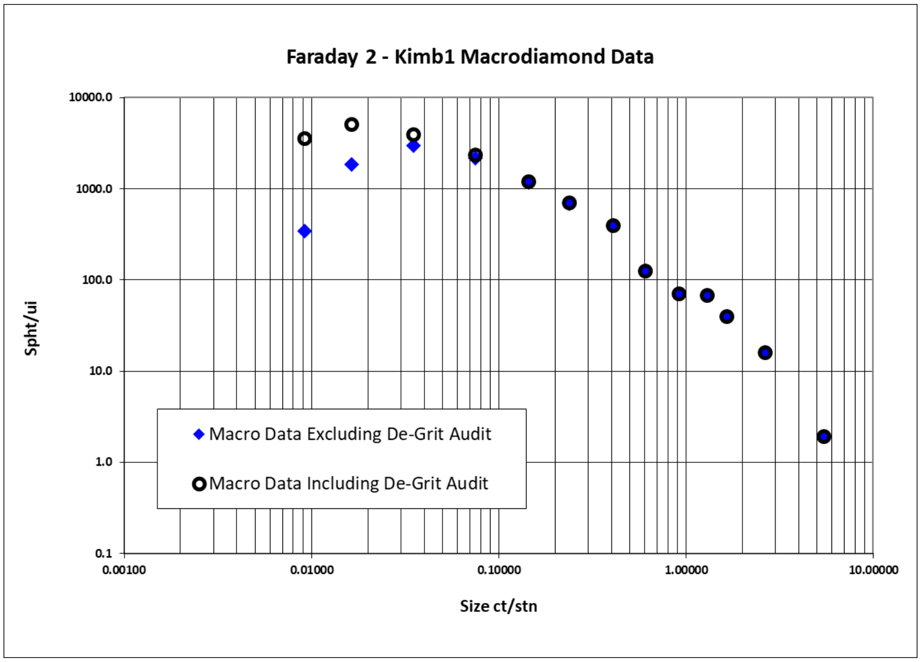

Figure 14-6: KIMB1 macrodiamond comparison showing addition of de-grit audit sample results

14.2.4.2 Microdiamond Data Summary

A location map of drill holes sampled for microdiamond analysis is provided in Figure 14-1, and a summary of microdiamond results for each internal domain is provided in Table 14-6. Internal geology domain codes were assigned to each microdiamond sample according to the location of the sample mid point relative to the geological model wireframes. Additional microdiamond data obtained for the Faraday 2 Extension (identified as "_Ext" in the table below) has been summarized separately to allow for comparison with the upper portion of Faraday 2. Similarities in microdiamond populations (i.e. stone density and SFD) between the upper and extension area within each domain supports diamond grade continuity across the entire Faraday 2 body.

Stone densities summarized in Table 14-6, as total stones per kg larger than the +212 µm size fraction (i.e. "Stns/kg_+212"), show comparable results between the upper and extension area for KIMB1 and KIMB2. The comparison for KIMB3 suggests a higher stone density within KIMB3_Ext; however, it should be noted that the small (70 kg) sample size for KIMB3_Ext would permit significant variance in stone density. The KIMB4 domain does not extend into Faraday 2 Extension; however, the lower stone density within this domain is reflective of the lower macrodiamond grade observed in the bulk sample results and summarized in Table 14-6.

SFD comparisons for the various microdiamond parcels are provided in Figure 14-7. For all plots, the KIMB1 domain SFD curve is included for comparison as it is the dominant domain in Faraday 2 and has the largest and most robust microdiamond parcel with almost 3,500 kg of sample material. Similar microdiamond SFD curves are observed for the internal domains of Faraday 2, particularly when sample weights exceed 500 kg (i.e. KIMB1, KIMB1_Ext, KIMB2_Ext and KIMB3).

Table 14-6: Microdiamond sample summary by domain. "_Ext" refers to Faraday 2 Extension

Size Class	KIMB1	KIMB1_Ext	KIMB2	KIMB2_Ext	KIMB3	KIMB3_Ext	KIMB4
3350 µm	4	1	1	1	0	0	0
2360 µm	13	2	0	1	4	0	3
1700 µm	24	6	4	6	3	0	5
1180 µm	73	28	12	32	20	3	9
850 µm	160	52	21	34	42	4	13
600 µm	300	88	73	94	75	11	32
425 µm	498	176	104	127	111	29	51
300 µm	994	313	200	264	209	52	101
212 µm	1,632	486	321	422	392	67	144
150 µm	2,657	738	521	641	660	109	260
106 µm	4,166	1,212	755	1,066	955	188	397
TOTAL STONES	**10,521**	**3,102**	**2,012**	**2,688**	**2,471**	**463**	**1,015**
Sample Weight (kg)	**3,490.5**	**923.3**	**333.9**	**517.3**	**525.1**	**70.6**	**561.8**
Stns/kg_+150	**1.82**	**2.05**	**3.76**	**3.14**	**2.89**	**3.90**	**1.10**
Stns/kg_+212	**1.06**	**1.25**	**2.20**	**1.90**	**1.63**	**2.35**	**0.64**

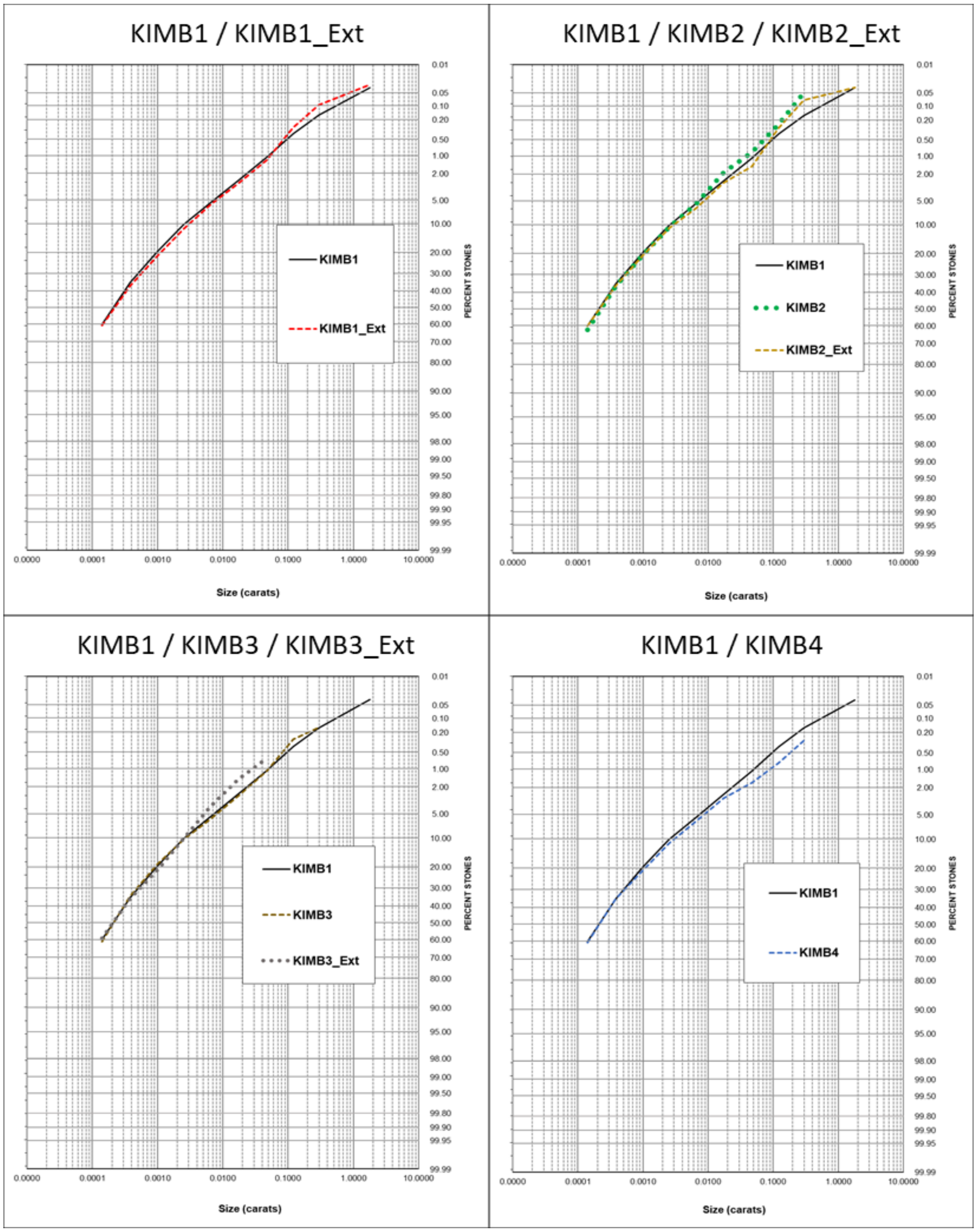

Figure 14-7: Cumulative SFD distributions by weight for microdiamond data from Faraday 2 kimberlite domains, as listed in Table 14-4.

Note: The +150 sieve serves as lower truncation for all SFD's. The KIMB1 SFD curve is included on all plots for reference.

14.2.5 *Total Diamond Content Analysis and Recoverable Grade Estimation*

Total diamond content curves have been modeled for each internal domain of Faraday 2 by fitting a quadratic mathematical function to the microdiamond and macrodiamond data expressed as stones per hundred tonne per unit internal, or "Spht/ui" (Figure 14-8). Data points selected to constrain each function are highlighted by unfilled diamond symbols on the plots. When fitting total diamond content curves, data points (i.e. size fractions) used to constrain the model should contain a sufficient number of stones to be representative of the diamond population (typically ten or more stones per size fraction). However, when dealing with small bulk sample sizes (i.e. tonnes and carat parcels) such as available for Faraday 2, it is possible that low stone counts (or possibly none) are recovered within the coarser size fractions and therefore are not necessarily representative of the diamond population. Discretion is accordingly exercised when selecting data points to use for fitting of total diamond content models, specifically to mitigate against potential bias (either high or low) of diamond grade and SFD. The total diamond content SFD models presented in Figure 14-8 predominately exclude size fractions where single stones have been recovered.

KIMB2 represents the only domain where counts for all size fractions were purposely selected to constrain the total diamond content model. This approach was considered justified because (i) the bulk sample size for KIMB2 is small (i.e. 22 tonnes and 68.1 carats), (ii) the KIMB2 domain represents 15% by volume of Faraday 2, and (iii) at 3.09 cpt, KIMB2 has the highest apparent bulk sample grade.

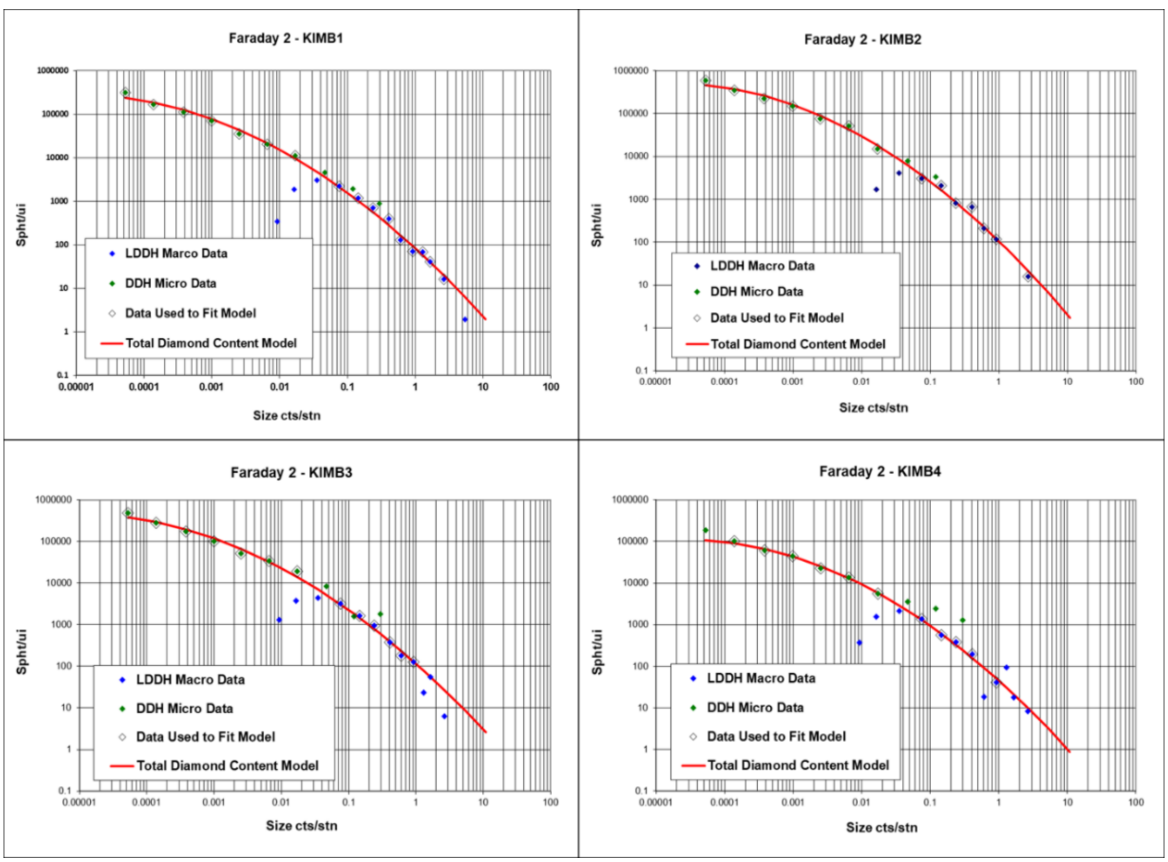

Figure 14-8: Total diamond content models

It should be noted that there is a significant degree of uncertainty associated with grade and SFD estimates for the KIMB2, KIMB3 and KIMB4 domains due to the limited bulk sample sizes and available macrodiamond data. The KIMB1 domain estimate is better constrained due to the larger bulk sample size and available diamond parcel; however, still lacks representative diamond data within the coarser end of the diamond population. Additional bulk sampling will be required within all Faraday 2 domains to provide higher confidence diamond grade and SFD estimates.

Recoverable grade estimates for each domain have been developed by applying recovery factors to the smaller diamond size fractions to account for diamond losses typically observed within a commercial diamond process plant. Recovery factors used for Faraday 2 are provided in Table 14-7, assuming a 1.0 mm bottom cut-off. Modification to the bottom cut-off assumption would also necessitate change to the recovery factors applied to the total diamond content models. Estimated recoverable grades (+1.0 mm bottom cut-off) for the Faraday 2 domains are provided in Table 14-8.

Table 14-7. Recoverable grade factors (assuming a 1.0 mm bottom cut-off)

Size Class (DTC Sieve)	Recovery Factor (1.0 mm cut-off)
≥ +7	1.00
+5	0.70
+3	0.55
+1	0.20

Table 14-8: Estimated Recoverable Grades for Faraday 2 Domains (+1.0 mm bottom cut-off)

Domain	Bulk Sample Size (tonnes)	Bulk Sample Grade (cpt +0.85 mm)	Estimated Recoverable Grade (cpt +1.0 mm)
KIMB1	156	2.35	2.45
KIMB2	22	3.09	3.60
KIMB3	56	2.99	3.45
KIMB4	43	1.36	1.40

The increase in estimated recoverable grades (+1.0 mm bottom cut-off) compared to the bulk sample grades (+0.85 mm bottom cut-off) as summarized in Table 14-8, is due to the modeled SFDs compensating for probable under-recovery of stones within the coarser size fractions of the diamond populations for all domains. As discussed above, the probable under-recovery of larger stones is due to the small bulk sample sizes available for Faraday 2.

14.2.6 *Diamond Value Estimate*

Faraday 2 diamond valuation was initially conducted by WWW International Diamond Consultants Ltd ("WWW") in Antwerp in July 2017. The diamond parcel was comprised of 2016 and 2017 bulk sample products and contained of a total of 726.47 carats. For valuation purposes, WWW grouped KIMB1 and KIMB4 into a single parcel containing 456.76 cts, and KIMB2 and KIMB3 was grouped into a second parcel containing 269.71 cts. This grouping of diamond parcels was conducted because textural similarities were noted between KIMB1 and KIMB4, and between KIMB2 and KIMB3. Also, the individual diamond parcels for KIMB2, KIMB3 and KIMB4 were too small to assess individually.

WWW developed one valuation model for Faraday 2 because valuation characteristics of the two grouped parcels were very similar. A "low" and "high" valuation scenario was developed for the Faraday 2 diamond parcel which provides a range of uncertainty in the valuation model, and a "best-fit" scenario was used to estimate the average dollar per carat (US$/ct) value for the Faraday 2 mineral resource (Table 14-9). However, it should be noted that throughout the 2017 valuation report WWW repeatedly stated that there is a high degree of uncertainty in their valuation model due to the small diamond parcel size available for Faraday 2.

Table 14-9: WWW 2017 Value Distribution Models

Size Fraction	US$/ct (Low)	US$/ct (Best Fit)	US$/ct (High)
+10.8 cts	660	1435	2700
10 cts	820	1435	2700
9 cts	820	1435	2700
8 cts	820	1435	2700
7 cts	820	1435	2700
6 cts	820	1435	2700
5 cts	600	945	1780
4 cts	550	815	1485
3 cts	470	685	1205
10 grns	370	525	855
8 grns	270	365	565
6 grns	190	250	360
5 grns	140	190	250
4 grns	110	145	160
3 grns	80	100	105
+11 DTC	58	74	75

+9 DTC	45	45	45
+7 DTC	32	32	32
+5 DTC	23	23	23
+3 DTC	13	13	13
-3 DTC	6	6	6

In preparation for the current resource update, WWW was requested to update their pricing for previously examined Faraday 2 goods to reflect current market conditions. The February 2019 updated parcel price for Faraday 2 is provided in Table 14-10. This updated re-pricing was used to adjust the WWW 2017 Value Distribution Models to reflect the reduction in forecast value for the lower size fractions (≤ +11 DTC), as depicted in Table 14-11. No adjustments were made to the July 2017 model value estimates for size fractions larger than +11 DTC.

Table 14-10: Comparison of WWW Valuations for Faraday 2 diamond parcels

Size Class	Carats		2017 Parcel Valuation (US$/ct)		2019 Parcel Valuation (US$/ct)		Percent Change	
	K1/K4	K2/K3	K1/K4	K2/K3	K1/K4	K2/K3	K1/K4	K2/K3
4 cts	8.99	-	1,442	-	1,577	-	9.4%	-
3 cts	3.43	-	22	-	18	-	-18.2%	-
10 grns	5.23	2.37	380	1,502	479	1,629	26.1%	8.5%
8 grns	9.00	3.90	77	83	67	69	-13.0%	-16.9%
6 grns	6.09	1.46	287	117	316	96	10.1%	-17.9%
5 grns	7.61	3.73	276	166	296	161	7.2%	-3.0%
4 grns	17.22	11.00	245	302	262	319	6.9%	5.6%
3 grns	17.50	7.27	101	116	101	114	0.0%	-1.7%
+11 DTC	74.69	36.73	71	66	59	54	-16.9%	-18.2%
+9 DTC	53.30	33.00	43	43	35	35	-18.6%	-18.6%
+7 DTC	53.66	34.03	27	39	22	32	-18.5%	-17.9%
+5 DTC	97.79	65.25	25	22	20	17	-20.0%	-22.7%
+3 DTC	55.28	41.48	11	13	10	11	-9.1%	-15.4%
+1 DTC	46.97	29.49	5	7	5	6	0.0%	-14.3%
TOTAL/avg	**456.76**	**269.71**	**83**	**60**	**83**	**56**	**0.0%**	**-6.7%**

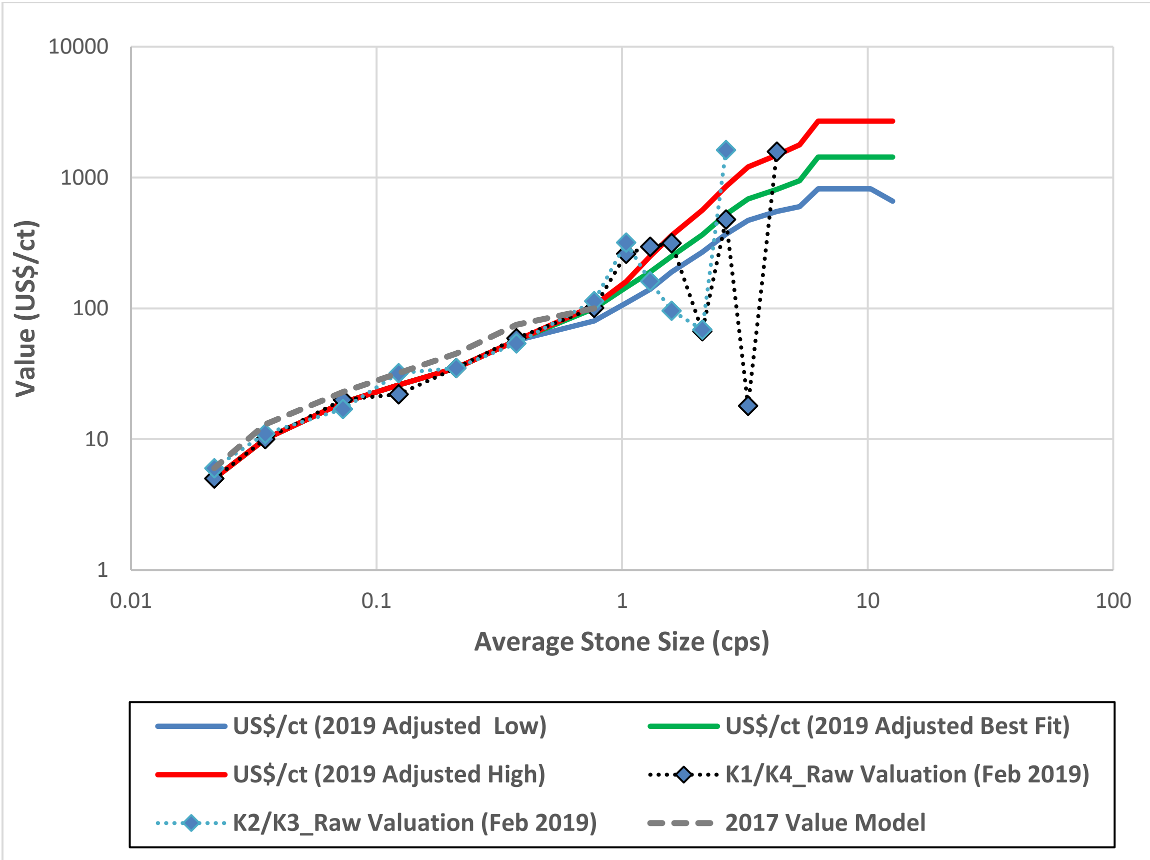

Figure 14-9: 2019 Adjusted diamond value distribution models

The adjusted value distribution model for the "best-fit" scenario was applied against the modeled SFD curves for each kimberlite domain within Faraday 2 (Figure 14-10) to derive an average US$ per carat estimate per domain, as summarized in Table 14-11. A significant increase in the average US$/ct value is noted when compared with July 2017 values; this reflects the diamond-content uplift provided in coarser sieve classes by the model SFDs adopted in this work (as presented in Section 14.2.5). Any deviations in macrodiamond stone density, particularly for the coarse end of the size fraction, will impact grade and SFD estimates for the internal domains of Faraday 2.

As noted by WWW, there is a high degree of uncertainty in the current diamond valuation for Faraday 2 due to the small diamond parcel size available for valuation. Additional bulk sampling is required within each domain to obtain a larger diamond parcel to increase the confidence in diamond value estimates for Faraday 2.

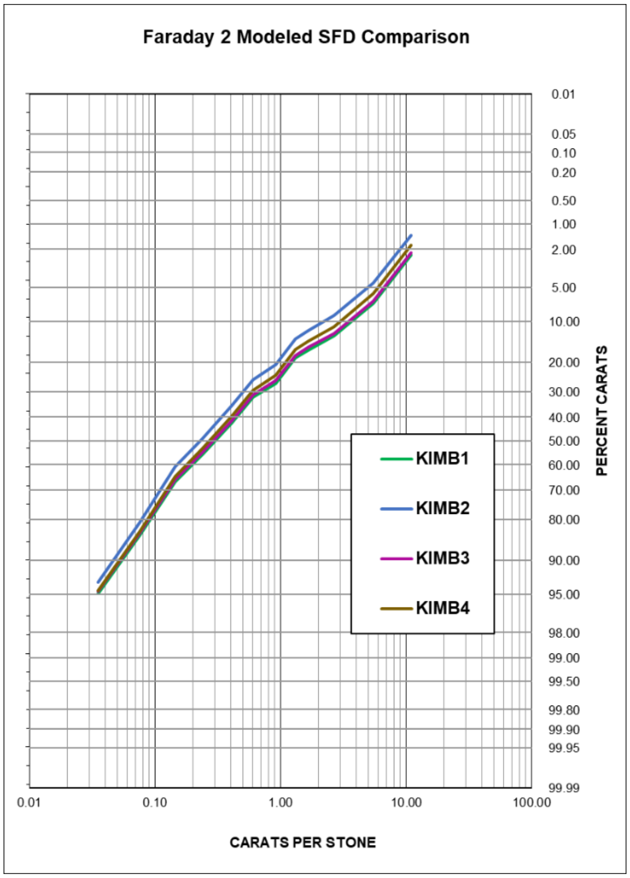

Figure 14-10: Modeled SFD curves for Faraday 2 domains (+1.0 mm bottom cut-off)

Table 14-11: Average diamond value estimate (US$/ct) for Faraday 2 domains (+1.0 mm bottom cut-off)

Domain	2019 Average Diamond Value Estimate (US$/ct)
KIMB1	$149
KIMB2	$110
KIMB3	$144
KIMB4	$130

14.2.7 *Diamond Breakage*

As reported in previous technical reports for Faraday 2, a diamond breakage assessment was conducted by the SRC on the LDDH bulk samples in 2017. The assessment focused on stones from the +11 DTC size category and larger, where diamond breakage was classified as "*a loss in mass of more than 5% resulting from breakage that is not of natural causes*". Based on this analysis, Faraday 2 bulk sample diamonds were assessed to have undergone approximately 15% average breakage.

Any diamond breakage will negatively impact the SFD and valuation characteristics of a diamond parcel and is a phenomenon that affects commercial process plants as well. The degree to which the estimated Faraday 2 bulk sample diamond breakage has affected SFD and value characteristics can not be quantified at this time, nor can a direct comparison be made relative to expected diamond breakage during commercial production. Therefore, no adjustments have been made to the current estimated diamond grades, SFD or valuation characteristics for Faraday 2 based on the diamond breakage assessment.

Any differences in diamond breakage between bulk sampling campaigns and commercial production will cause reconciliation discrepancies between mineral resource estimates and actual mined production.

14.2.8 *FARADAY 2 MINERAL RESOURCE STATEMENT AND CLASSIFICATION*

A mineral resource is defined by the CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM, 2014) as;

> "*a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."*

CIM further defines "reasonable prospect of eventual economic extraction" as;

> *"a judgment in respect of the technical and economic factors likely to influence the prospect of economic extraction. Assumptions should include estimates of cut-off grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method and mining, processing and general and administrative costs."*

Mineral resources for Faraday 2 have been classified as Inferred Mineral Resources. No Indicated or Measured Mineral Resource has been defined for this deposit. CIM Definition Standards for Mineral Resources and Mineral Reserves (CIM, 2014) define an Inferred Mineral Resource as follows;

> *An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration*.

Faraday 2 has been classified as an Inferred Mineral Resource predominantly due to the small bulk samples and diamond parcels available for grade, SFD and diamond valuation estimation for each internal domain within the upper portion of the kimberlite. Also, the Faraday 2 Extension has been assessed on microdiamond data only and therefore would require bulk sampling within the extension to confirm continuity assumptions of diamond grade, SFD and value.

The 2019 mineral resource statement for Faraday 2 is provided in Table 14-12.

Table 14-12: Faraday 2 2019 mineral resource statement (effective date of February 28, 2019)

Classification	Domain	Volume (Mm^3)	Density (t/m^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mcts)	Value (US$/ct)
Inferred	KIMB1	0.61	2.35	1.43	2.45	3.51	$149
	KIMB2	0.13	2.43	0.32	3.60	1.17	$110
	KIMB3	0.08	2.37	0.18	3.45	0.62	$144
	KIMB4	0.04	2.41	0.11	1.40	0.15	$130
	KIMB5	0.007	2.35	0.017	0.00	0.00	$0
	Internal Waste	0.005	2.75	0.014	0.00	0.00	$0
TOTALS		***0.88***	***2.37***	***2.07***	***2.63***	***5.45***	***$140***

Notes:

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect accuracy of the estimate.
2. Mineral resources are quoted above a +1.0 mm bottom cut-off and have been factored to account for diamond losses within the smaller sieve classes expected within a commercial process plant.
3. Inferred mineral resources are estimated on the basis of limited geological evidence and sampling, sufficient to imply but not verify geological grade and continuity. They have a lower level of confidence than that applied to an Indicated mineral resource and cannot be directly converted into a mineral reserve.
4. Average diamond value estimates are based on an updated valuation model provided by WWW International Diamond Consultants Ltd in February 2019.
5. Mineral resources have been estimated with no allowance for mining dilution and mining recovery.
6. Reasonable prospects for economic extraction have been assessed for both open pit and underground mining at a conceptual level and form the basis for mineral resource estimation. A combination of open pit and underground mining methods has been assumed for Faraday 2. Open pit and underground mining operating costs of CDN$84 and CDN$152 per tonne of ore feed, respectively, have been assumed in the analysis. A foreign exchange rate of 1.30 CDN$:US$ was used for this conceptual mining analysis.

14.2.9 *Previous Mineral Resource Estimate - Faraday 2*

The previous mineral resource estimate for Faraday 2, with an effective date of November 17, 2017 is provided in the "2017 Technical Report - Project Exploration Update and Faraday Inferred Mineral Resource Estimate, Kennady Lake North – Northwest Territories, Canada" (www.sedar.com).

Table 14-13. Previous mineral resource - Faraday 2 (+1.0 mm bottom cut-off)

Classification	Domain	Volume (Mm^3)	Density (t/m^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mcts)	Value (US$/ct)
Inferred	KIMB1	0.44	2.35	1.03	2.23	2.29	$124
	KIMB2	0.04	2.43	0.11	3.07	0.33	$69
	KIMB3	0.06	2.37	0.14	2.73	0.38	$69
	KIMB4	0.05	2.41	0.11	1.22	0.13	$124
	Internal Waste	0.005	2.75	0.01	0	0	0
TOTALS		***0.59***	***2.37***	***1.39***	***2.24***	***3.13***	***$112***

Notes:

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect accuracy of the estimate.
2. Mineral resources are quoted above a +1.0 mm bottom cut-off and have been factored to account for diamond losses within the smaller sieve classes expected within a commercial process plant.
3. Inferred mineral resources are estimated on the basis of limited geological evidence and sampling, sufficient to imply but not verify geological grade and continuity. They have a lower level of confidence than that applied to an Indicated mineral resource and cannot be directly converted into a mineral reserve.
4. Average diamond value estimates are based on an updated valuation model provided by WWW International Diamond Consultants Ltd in February 2019.
5. Mineral resources have been estimated with no allowance for mining dilution and mining recovery.

Changes to the updated Faraday 2 mineral resource as presented in Table 14-12, are associated with the following components;

- A 49% increase in mineral resource volume associated with the inclusion of the Faraday 2 Extension, based on geological continuity observed in diamond drill core and grade continuity interpreted from microdiamond analysis.
- A 17% increase in average grade associated with a tonnage increase of the higher grade KIMB2 domain, as well as increased average grade estimates for all domains based on a re-interpretation of the total diamond content models for all domains.
- A 25% increase in the average dollar per carat estimate based on re-interpreted total diamond content models and SFD models for all domains.

As noted in previous sections, the revised grade and SFD models are associated with revised estimates of stone density within the coarser size fractions of the diamond populations within each domain.

14.2.10 *RECOMMENDATIONS*

As noted throughout Section 14.2, additional bulk sampling is required within all internal domains of Faraday 2, including Faraday 2 Extension, to increase the confidence in estimates of diamond grade, SFD and value characteristics. Additional bulk sampling campaigns should be designed to collect sufficient data to support local estimation of diamond grade for future economic studies.

14.3 UPDATED KENNADY NORTH MINERAL RESOURCE STATEMENT – FEBRUARY 28, 2018

Table 14-14. Updated Kennady North mineral resource statement – February 28, 2019

Resource Classification	Body	Volume (Mm^3)	Density (gm/cm^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mct)	Value (US $/ct)
Indicated	Kelvin	3.49	2.44	8.50	1.60	13.62	63
Inferred	Faraday 2	0.88	2.37	2.07	2.63	5.45	140
Inferred	Faraday 3	0.76	2.47	1.87	1.04	1.90	75

Notes:

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect accuracy of the estimate.
2. Mineral resources are quoted above a +1.0 mm bottom cut-off and have been factored to account for diamond losses within the smaller sieve classes expected within a commercial process plant.
3. Indicated mineral resources are estimated, based upon quantity, grade or quality, densities, shape and physical characteristics, with sufficient confidence and detail to support mine planning and evaluation of the economic viability of the deposit. Indicated resource classification was provided November 17, 2017 (Vivian and Nowicki).
4. Average diamond value estimates for Kelvin and Faraday 3 are based upon a valuation model provided by WWW International Diamond Consultants Ltd in July 2017.
5. Inferred mineral resources are estimated on the basis of limited geological evidence and sampling, sufficient to imply but not verify geological grade and continuity. They have a lower level of confidence than that applied to an Indicated mineral resource and cannot be directly converted into a mineral reserve. The Faraday 2 resource classification is of February 28, 2019.
6. Reasonable prospects for economic extraction have been assessed for both open pit and underground mining at a conceptual level and form the basis for mineral resource estimation. A combination of open pit and underground mining methods has been assumed for Faraday 2. Open pit and underground mining operating costs of CDN$84 and CDN$152 per tonne of ore feed, respectively, have been assumed in the analysis. A foreign exchange rate of 1.30 CDN$:US$ was used for this conceptual mining analysis.
7. Average diamond value estimates for the Faraday 2 update are based on an updated valuation model provided by WWW International Diamond Consultants Ltd in February 2019.
8. Mineral resources have been estimated with no allowance for mining dilution and mining recovery.

15 ADJACENT PROPERTIES

15.1 GAHCHO KUÉ

The Kennady North project lies adjacent to the Gahcho Kué Joint Venture's (GKJV) Kennady Lake Project, which is owned by De Beers Canada Exploration Inc. (operator 51%) and Mountain Province Diamonds (49%). Three of the kimberlites that form part of the cluster under Kennady Lake (5034, Hearne, and Tuzo) are currently undergoing commercial production. The most up-to-date resource and reserve statistics were obtained from the Annual Information Form produced by Mountain province Diamonds Inc. on March 20, 2019, www.sedar.com. The reserve and resource summaries were produced by De Beers Canada Inc.

The resource statement for GK is summarized in Table 15-1 and the reserve statement is summarized in Table 15-2. The authors have no way of verifying the resource statement. The mineralization on the Gahcho Kué property is not necessarily indicative of the mineralization on the Mountain Province Diamonds Kennady North property.

Table 15-1. Mineral Resources Summary (December 31, 2018) (Presented on a 100% basis by De Beers Canada)

Resource	Classification	Tonnes (Mt)	Carats (Mct)	Grade (cpt)
5034	Indicated	1.4	2.1	1.49
	Inferred	0.4	1.0	2.09
Hearne	Indicated	0.2	0.3	1.54
	Inferred	0.9	1.4	1.61
Tuzo	Indicated	0.2	0.1	0.57
	Inferred	10.8	14.6	1.35
Summary (In-Situ)	Indicated	1.8	2.5	1.41
	Inferred	12.1	17.0	1.40
Stockpiles	Indicated	0.0	0.0	0
	Inferred	0.0	0.0	115(3)

Notes:
(1) Mineral Resources are reported at a bottom cut-off of 1.0 mm. Incidental diamonds are not incorporated in grade calculations.
(2) Mineral Resources are not mineral reserves and do not have demonstrated economic viability.
(3) Volume, tonnes and carats are rounded to the nearest 100,000.
(4) Tuzo tonnes exclude 0.6 Mt of a granite raft and CRX_BX.
(5) Resources are exclusive of indicated tonnages converted to probable reserves.
(6) Resources have been depleted of any material that was processed prior to and including Dec 31, 2018.

Table 15-2. Mineral Reserve Summary (December 31, 2018) (Presented on a 100% basis by De Beers Canada)

Pipe	Classification	Tonnes (Mt)	Carats (Mct)	Grade (cpt)
5034	Probable	9.1	17.4	1.91
Hearne	Probable	4.4	8.7	1.98
Tuzo	Probable	16.6	19.9	1.20
In-Situ Total	Probable	30.1	46.0	1.53
Stockpile	Probable	1.0	1.9	2.04
Total	Probable	31.1	47.9	1.54

Notes: (1) Mineral Reserves are reported at a bottom cut-off of 1.0 mm
(2) Mineral Reserves have been depleted to account for mining and processing activity prior to Dec 31, 2018.
(3) Q4 2018 depletion is based on forecasted values and may differ slightly from actual depletion.
(4) Mineral Reserves are based upon the updated resource model (2017) and reflect any changes to the estimation of Tonnes, Grade and Contained carats within that resource.
(5) Prices used to determine optimal pit shells have been escalated by factors varying by pit, which are indicative of the respective pits timing and duration.

16 OTHER RELEVANT DATA AND INFORMATION

There is no additional information not contained in this report, which is relevant to the project.

17 INTERPRETATION AND CONCLUSIONS

An updated Mineral Resource has been established for the Faraday 2 kimberlite based upon additional delineation drilling and microdiamond sampling of the deep NW extension of Faraday 2. The updated resource is listed in Table 14-13.

During 2018, KDI continued to evaluate additional geophysical targets by diamond drilling. Although there was tremendous success with intersecting kimberlite, the 2018 drill program did not produce any pyroclastic kimberlite. Only hypabyssal/coherent kimberlite rocks were intersected. There were significant intersections of hypabyssal kimberlite (up to 6.27 m) and further work is warranted in these areas.

The Kelvin and Faraday kimberlites have unconventional external pipe morphologies and very low abundances of mantlederived indicator minerals which make them very difficult to discover. In order to help in the search for unconventional, or even conventional, kimberlite bodies KDI engaged Palmer Environmental to complete till suitability and KIM train evaluations. This study will allow KDI to prioritize the importance of KIM responses in relation to the tills in which they were observed. This factor should allow for identifying the head of till trains and prioritizing follow-up work. It will be critical to continue the systematic approach to exploration that has afforded KDI to discover unconventional kimberlite bodies in the Kelvin-Faraday Corridor.

High resolution geophysics, using gravity, Ohmmapper© and towed magnetometer surveys will be important in evaluating future targets. Blob Lake, portions of the KFC and other areas across the property have been identified as priority areas to look for additional kimberlite bodies. KDI has identified that the area of interest during the next phase of work will be within the KFC corridor which extends north of the Faraday 1 kimberlite and as far south as Blob Lake.

The current resource at the Kennady North Property is documented as follows:

Table 17-1. Updated Mineral Resource for the Kennady North Property - as at February 28,2019

Resource Classification	Body	Volume (Mm^3)	Density (gm/cm^3)	Tonnes (Mt)	Grade (cpt)	Carats (Mct)	Value (US $/ct)
Indicated	Kelvin	3.49	2.44	8.50	1.60	13.62	63
Inferred	Faraday 2	0.88	2.37	2.07	2.63	5.45	140
Inferred	Faraday 3	0.76	2.47	1.87	1.04	1.90	75

Notes to Table 17-1.

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All numbers have been rounded to reflect accuracy of the estimate.
2. Mineral resources are quoted above a +1.0 mm bottom cut-off and have been factored to account for diamond losses within the smaller sieve classes expected within a commercial process plant.
3. Indicated mineral resources are estimated, based upon quantity, grade or quality, densities, shape and physical characteristics, with sufficient confidence and detail to support mine planning and evaluation of the economic viability of the deposit. Indicated resource classification was provided November 17, 2017 (Vivian and Nowicki).

4. Average diamond value estimates for Kelvin and Faraday 3 are based upon a valuation model provided by WWW International Diamond Consultants Ltd in July 2017.
5. Inferred mineral resources are estimated on the basis of limited geological evidence and sampling, sufficient to imply but not verify geological grade and continuity. They have a lower level of confidence than that applied to an Indicated mineral resource and cannot be directly converted into a mineral reserve. The Faraday 2 resource classification is of February 28, 2019.
6. Reasonable prospects for economic extraction have been assessed for both open pit and underground mining at a conceptual level and form the basis for mineral resource estimation. A combination of open pit and underground mining methods has been assumed for Faraday 2. Open pit and underground mining operating costs of CDN$84 and CDN$152 per tonne of ore feed, respectively, have been assumed in the analysis. A foreign exchange rate of 1.30 CDN$:US$ was used for this conceptual mining analysis.
7. Average diamond value estimates for the Faraday 2 update are based on an updated valuation model provided by WWW International Diamond Consultants Ltd in February 2019.
8. Mineral resources have been estimated with no allowance for mining dilution and mining recovery.

18 RECOMMENDATIONS

The continued search for additional resources at Kennady North will remain the focus for KDI. During 2019, KDI will focus their exploration attention in the area comprising the KFC corridor. The KFC lies within easy access of the Gahcho Kué Mine, which MPV is a 49% partner. This will remain the near-term focus while other targets across the property continue to be advanced to a drill stage using the new KIM till analysis and the tool box of geophysical surveys.

Blob Lake, Quail Pond, Sad Fox Lake and targets in the vicinity of the Faraday kimberlites will be priority targets addressed during the 2019 drill program. Drill targets for 2019 have been prioritized using KIM chemistry and geophysics.

KDI continues a strong commitment to the environmental baseline program and this work will continue during 2019.

The proposed budget for the upcoming calendar year is summarized in Table 18-1.

Table 18-1. Exploration Budget on Kennady North Project - 2019

BUDGET ITEM	TOTAL (CAD $)
Equipment Standby and Storage	
Infinity gear storage (Jan @51,700/mo; Apr - Dec @ 44k/mo)	$ 176,550
Midnight Sun gear storage (Jan and Feb @ 20k/mo)	$ 40,000
Northtech - Diamond Drills (Jan, Feb, May to Dec @ 11k/mo)	$ 66,000
CasCom - Communications equipment (Jan, Feb, May to Dec @1.05k/mo)	$ 10,500
CR Enterprises - Concrete truck storage (Jan to Mar @ 7.7k/mo)	$ 15,400
C-Can Storage (12 months @ $2.75k/month)	$ 33,000
Blue Lagoon Rental and Security (Full Year @ 6.91k/mo)	$ 82,920
	$ 424,370
Demobilization	$ 1,072,850
Ice Construction & Maintenance, Winter Road	
Drilling/Camp Operation	$ 1,380,000
Diamond Drilling	$ 843,500
Geophysics	$ 35,000
Sample Evaluations/Reports	
SRK support & Change Orders 12 & 13	$ 50,000
AGL Detailed Geology & Modeling - including GIS and technical support	$ 80,000
	$ 130,000
Support Costs	
Safety, Medical, Communications, Expediting	$ 85,700
Corporate Requirements	$ 10,000
SubTotal	$ 3,981,420
Contingency	$ 398,142
Total Budget	$ 4,379,562

19 DATE AND SIGNATURE PAGE

This report titled "2019 Technical Report - Project Exploration and Faraday Inferred Mineral Resource Estimate Update, Kennady Lake North – Northwest Territories, Canada" and dated May 10, 2019 was prepared by and signed by the following authors:

(original signed and sealed) "Gary Vivian, P.Geol."

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Gary Vivian, M.Sc., P.Geol.
Chairman, Aurora Geosciences Ltd.
Dated at Yellowknife, Northwest Territories on May 10, 2019

(original signed and sealed) "Cliff Revering, P.Eng.."

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Cliff Revering, P.Eng.
Principal Consultant, SRK Consulting (Canada) Inc.
Dated at Vancouver, British Columbia on May 10, 2019.

(original signed and sealed) "Casey Hetman, P.Geo."

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Casey Hetman, M.Sc., P.Geo.
Corporate Consultant – Primary Diamond Deposits
SRK Consulting (Canada) Inc.
Dated at Vancouver, British Columbia on May 10, 2019

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CERTIFICATE OF QUALIFIED PERSON

I, Gary Vivian, of the City of Yellowknife, in the Northwest Territories, Canada,

HEREBY CERTIFY:

1. That my business address is 3506 McDonald Drive, Yellowknife, NT, X1A 2H1
2. This certificate applies to the report titled “2019 Technical Report – Project Exploration Update and Faraday Inferred Mineral Resource Estimate, Kennady North Project, Northwest Territories, Canada” and dated May 10, 2019.
3. That I am a graduate of Sir Sandford Fleming College as a Geophysical Technologist, 1976.
4. That I am a graduate of the University of Alberta in Geology:
   a. B.Sc. – Specialization Geology, 1983.
   b. M.Sc. – Geology, 1987, U of A – Thesis title: The Geology of Blackdome Ag-Au Deposit, BC
5. That I have been practicing Geology since 1983:

a) May 1983 – November 1986 Noranda Exploration Co. Ltd., Bathurst, NB
b) December 1986 – May 1988 Noranda Exploration Co. Ltd., Timmins, ON
c) May 1988 – Present Covello, Bryan and Associates Ltd. and currently Aurora Geosciences Ltd., NT

6. That I am a registered Professional Geologist in the Northwest Territories. I have professional designation in Manitoba, Saskatchewan, Alberta and BC. I am also registered with AIPG (American Institute of Professional Geologists). I have over 40 years of exploration experience, 29 years as a P.Geol., with 26 years in kimberlite exploration (till sampling, geophysics, geology, mapping, core logging and program management). These programs were completed for companies such as Diavik Diamond Mines, Aber Resources, SouthernEra Resources, De Beers Canada Exploration Inc., GGL Resources Corp. and many other junior mining companies. As such I am a Qualified Person for the purposes of National Instrument 43-101.

7. As a principal of Aurora, I have written this report and managed a number of the historical programs on the Kennady North project. I have visited the property on a monthly basis since April 1, 2012. I am responsible for all sections, except for Section 1.9 and 14, in this report titled – “2019 Technical Report-Project Exploration Update and Faraday Inferred Mineral Resource Estimate, Kennady North Project, Northwest Territories, Canada”.

8. That I am independent of the issuer as defined by the tests set out in Section 1.5, “Standards of Disclosure for Mineral Projects”, National Instrument 43-101.

9. That I have read “Standards of Disclosure for Mineral Projects”, National Instrument 43-101 and read Form 43-101F1. This report has been prepared in compliance with this Instrument and Form 43-101F1.

10. That, as of May 10, 2019, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated May 10, 2019 at Yellowknife, Northwest Territories.

(original signed and sealed) “Gary Vivian, P.Geol.”

____

Gary Vivian, M.Sc., P.Geol.

CERTIFICATE OF QUALIFIED PERSON

To accompany the report entitled: *2018 Technical Report - Project Exploration Update and Faraday Inferred Mineral Resource Estimate, Kennady North Project, Northwest Territories, Canada, with an effective date of April 24, 2019.*

I, Cliff Revering, do hereby certify that:

1) I am a Principal Consultant (Geological Engineering) with the firm of SRK Consulting (Canada) Inc. (SRK) with a business address at Suite 600, 350 3rd Ave. North, S7K 6G6, Saskatoon, Saskatchewan, Canada.
2) I am a graduate of the University of Saskatchewan in 1995 with a B.E. in Geological Engineering and completed a Citation in Applied Geostatistics from the University of Alberta. My relevant experience includes more than 23 years employment in the mining industry, related to exploration, mine operations and project evaluations, with a specialization in geological modelling, mineral resource and reserve estimation, production reconciliation, grade control, exploration and production geology and mine planning.
3) I am a professional Engineer registered with the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS#9764).
4) I have read the definition of qualified person set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association, and past relevant work experience, I fulfil the requirements to be a qualified person for the purposes of National Instrument 43-101.
5) I am independent of Mountain Province Diamonds as defined in Section 1.5 of National Instrument 43-101.
6) I am a co-author of this report responsible for section 14.2, and accept professional responsibility for this section of this technical report.
7) SRK Consulting (Canada) Inc. was retained by Mountain Province Diamonds to conduct a mineral resource update of the Faraday 2 diamond deposit for the Kennady North Project. Our mineral resource update was completed using CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* and National Instrument 43-101 guidelines.
8) I have not visited the project site.
9) I have had no prior involvement with the subject property.
10) I have read National Instrument 43-101, Form 43-101F1 and confirm that this technical report has been prepared in accordance therewith.
11) As at the effective date of the technical report, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Saskatoon, Saskatchewan
April 24, 2019

PROFESSIONAL ENGINEER
C.J. REVERING
MEMBER 9764
19 04 24
YR. MO. DAY
SASKATCHEWAN

Cliff Revering, PEng, CPAG, BE.
Principal Consultant (Geological Engineering)

CERTIFICATE OF QUALIFIED PERSON

I, Casey Hetman, of the City of Vancouver, in British Columbia, Canada,

HEREBY CERTIFY:

1. That my business address is Oceanic Plaza – 22nd Floor, 1066 West Hastings Street, Vancouver, BC, V6E 3X2

2. This certificate applies to the report titled "2019 Technical Report – Project Exploration Update and Faraday Inferred Mineral Resource Estimate, Kennady North Project, Northwest Territories, Canada" and dated May 10, 2019.
3. That I am a graduate of the University of Toronto 1993, Hons. B.Sc., Geology Specialist and also the University of Toronto 1996, M.Sc. Geology.

4. That I have been practicing Geology since 1993:

   a) May 1993 to June 2005 De Beers Canada – Kimberlite Petrologist/Exploration Geologist. Not full time due to academic studies.
   b) July 2005 to April 2011 Mineral Services Canada – Principal Geoscientist, Vancouver, BC.
   c) June 2011 to Dec 2012 Northern Superior Resources, VP Exploration, Chief Geologist, Sudbury, ON.
   d) Jan 2013 to Jan 2018 SRK Consulting Canada Inc., Principal Consultant, Vancouver, BC.
   e) Jan 2018 to present SRK Consulting Canada Inc., Corporate Consultant, Vancouver, BC.

5. That I am a registered Professional Geoscientist in British Columbia including professional designation in the Northwest Territories and Ontario. I have over 24 years of experience focused on the exploration and evaluation of primary diamond deposits. I have dedicated my career to the macroscopic and petrographic investigation of drill cores and mining exposures for the purpose of identifying and characterizing geological domains defined by different grades. I am proficient in geochemistry, grade information and geophysics together with modern volcanological principles to generate 3-D models. I am involved in geological investigations for the purpose of exploration, resource development and classification, as well as mine planning exercises on kimberlites worldwide.

6. I have reviewed this report and have been involved in the geological evaluation of the kimberlites on the KDI property since 2013. I have co-authored Section 7 and Section 14 of this report titled - "2019 Technical Report-Project Exploration Update and Faraday Inferred Mineral Resource Estimate, Kennady North Project, Northwest Territories, Canada".

7. That I am independent of the issuer as defined by the tests setout in Section 1.5, "Standards of Disclosure for Mineral Projects", National Instrument 43-101.

8. That I have read "Standards of Disclosure for Mineral Projects" National Instrument 43-101 and read Form 43-101F1. This report has been prepared in compliance with this instrument and Form 43-101F1.

9. That as of May 10, 2019, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated May 10, 2019 at Vancouver, British Columbia.

(original signed and sealed) "Casey Hetman, P.Geo."

Casey Hetman, M.Sc., P.Geo.

CONSENT

To : The Toronto Stock Exchange, P.O. Box 450, 3rd Floor, 130 King Street West, Toronto, ON M5X 1J2
British Columbia Securities Commission – 701 West Georgia St, P.O. Box 10142, Pacific Centre, Vancouver, BC V7Y 1L2
Alberta Securities Commission – Suite 600, 250-5th Street SW, Calgary, AB T2P 0R4
Saskatchewan Securities Commission – Financial and Consumer Affairs Authority – Suite 601, 1919 Saskatchewan Drive, Regina, SK S4P 4H2
Manitoba Securities Commission – 500, 400 ST, Mary Avenue, Winnipeg, MB R3C 4K5
Ontario Securities Commission – 20 Queen St W, 20th Floor, Toronto, ON M5N 3S8
New Brunswick Securities Commission – Financial and Consumer Services Commission – 85 Charlotte Street, Suite 300, Saint John, NB E2L 2J2
Nova Scotia Securities Commission – P.O. Box 458, Halifax, NS B3J 2P8
Prince Edward Island Securities Commission – P.O. Box 2000, Charlottetown, PEI C1A 7N8
Newfoundland Securities Commission– 100 Prince Phillip Drive, P.O. Box 8700, St. John's, NL A1B 4J6

The authors consent to the public filing of the Technical Report and to extracts from, or a summary of, the Technical Report in the written disclosure being filed. The authors confirm they have read the written disclosure being filed and that it fairly and accurately represents the information in the Technical Report that supports the disclosure.

This consent is dated at Vancouver, British Columbia on May 10, 2019

(original signed and sealed) "Gary Vivian, P.Geol."

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Gary Vivian, M.Sc., P.Geol.
Aurora Geosciences Ltd.

(original signed and sealed) "Cliff Revering, P.Eng."

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Cliff Revering, P.Eng.
Principal Consultant, SRK Consulting (Canada) Inc.

(original signed and sealed) "Casey Hetman, P.Geo."

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Casey Hetman, M.Sc., P.Geo.
Corporate Consultant, SRK Consulting (Canada) Inc.