SEC Technical Report Summary
Initial Assessment of the
Johnson Tract Polymetallic (Gold, Zinc, Copper, Silver, Lead) Project, Alaska

Effective Date: May 12, 2025
Report Date: May 6, 2025

Report Prepared for

Contango Ore, Inc.

516 2nd Avenue, Suite 401
Fairbanks, Alaska
99701

Report Prepared by

SRK Consulting (Canada), Inc.
2A – 69 Young Street
Sudbury, ON P3E 3G5, Canada

SRK Project Number: CAPR003429

Date and Signature Page

S-K 1300 SEC Technical Report Summary Initial Assessment of the Johnson Tract Polymetallic (Gold, Zinc, Copper, Silver, Lead) Project, Alaska.

Prepared for: Contango Ore, Inc.

Report Date: May 6, 2025

Prepared by the following firms:

QP Firm	Responsibilities/ Contributions	Signature	Date
SRK Consulting	1.5,1.6,1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 12, 13, 15, 17, 18, 19, 22, 23, 24	“signed”	May 6, 2025
International Metallurgical & Environmental Inc	1.7, 10, 14, 22, 23	“signed”	May 6, 2025
Advantage Geosciences	1.4, 11, 8, 9, 22	“signed”	May 6, 2025
Stantec	16	“signed”	May 6, 2025
Contango Ore	1.1, 1.2, 1.3, 2-9, 20, 21, 24	“signed”	May 6, 2025

Contents

List of Figures

List of Tables

List of Abbreviations

All currency is in U.S. dollars (US$) unless otherwise stated.

Abbreviation	Unit or Term
%	percent
°	degree (degrees)
μm	micron or microns
2D	two dimension
3D	three-dimensional
AA	atomic absorption
AAC	Alaska Administrative Code
ABA	acid-base accounting
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AES	Alaska Earth Sciences
Ag	silver
AHRS	Alaska Heritage Resource Survey
Ai	Bond Abrasion Index
Al	aluminum
ANCSA	Alaskan Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
APMA	application for permits to mine in Alaska
ARD	acid-rock drainage
ATF	Bureau of Alcohol, Tobacco, Firearms, and Explosives
Au	gold
AuEq	gold equivalent grade
Ba	barium
BBFZ	Bruin Bay fault zone
BCR	Blue Coast Research Ltd.
BWI	ball mill work index
CIF	cost insurance and freight
CIRI	Cook Inlet Region, Inc.
cm	centimeter
CN	cyanide
CORS	continuously operating reference stations
CPG	certified professional geologist
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
Cu	copper
CV	coefficient of variation
CWA	clean water act

Abbreviation	Unit or Term
DC	Difficult Creek
DCIP	direct current resistivity and induced polarization
DFGT	dark fine-grained tuff
DLT	dacite quartz-eye lapilli tuff
dmt	dry metric tonne
DOI	United States Department of Interior
DSM	digital surface model
Dwi	drop weight index
EA	environmental assessment
EDC	East Difficult Creek
EED	environmental evaluation document
E-GRG	extended gravity recoverable gold
EID	environmental information document
EIS	environmental impact statement
EM	electromagnetic
EPSG	European Petroleum Survey Group
ESA	endangered species act
F	Fahrenheit
Fe	iron
FONSI	finding of no significant impact
ft	foot (feet)
FWCZ	footwall copper zone
g	gram
g/t	grams per tonne
GCP	ground control points
GIS	geographic information system
GNSS	global navigation satellite system
GPS	global positioning system
gpt	grams per tonne
GRG	gravity recoverable gold
HG	higher grade
HGM	HighGold Mining
Hz	hertz
IA	Initial Assessment
ICP	induced couple plasma
ICP-AES	inductively coupled plasma atomic emission spectrometry
ID	identification
ID	Inverse Distance
IFSAR	interferometric synthetic aperture radar
in	inch

Abbreviation	Unit or Term
IP	induced polarization
IR	infrared
Ja	alteration of joints
Jn	number of joint sets
Jr	roughness of joints
JT	Johnson Tract
JT Ext	Johnson Tract Extension
kg	kilograms
km	kilometer
koz	thousand troy ounce
kt	thousand tonnes
kV	kilovolt
kW	weight
kWh	kilowatt-hour
kWh/t	kilowatt-hour per metric tonne
L	liter
lb	pound
LCNPP	Lake Clark National Park and Preserve
LCT	locked cycle test
LG	lower grade
LiDAR	light detection and ranging
LoM	life-of-mine
m	meter
m^3	cubic meter
Ma	mega annum (million years)
mi	mile
Mia	The coarse tumbling particle coefficient for a Morrell power equation, kWh/t.
Mic	The crushing coefficient for a Morrell power equation, kWh/t.
Mih	The high pressure grinding roll coefficient for a Morrell power equation, kWh/t.
ML	metal leaching
mm	millimeter
MOU	memorandum of understanding
Moz	million troy ounces
Mt	million tonnes
MW	million watts
MWMP	meteoric water mobility procedure
NAD83	North American datum of 1983
NAVD88	North American vertical datum of 1988
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

Abbreviation	Unit or Term
NI 43-101	Canadian National Instrument 43-101
NMFS	National Marine Fisheries Service
NN	nearest neighbor
NOAA	National Oceanic and Atmospheric Administration
non-PAG	non-potentially acid generating
NPS	National Park Service
NSR	net smelter return
OK	Ordinary Kriging
oz	troy ounce
P80	particle size at which 80% of the material processed is below that size
PA	programmatic agreement
Pb	lead
PL	public law
ppb	parts per billion
PPK	post-processed kinematic
ppm	parts per million
QA/QC	quality assurance/quality control
QFP	quartz feldspar porphyritic dacite
QPC	quartz pebble conglomerate
R2	coefficient of determination
RAA	Resource Associates of Alaska
RC	refining charge
Re-Os	rhenium–osmium
ROD	record of decision
RoM	Run-of-Mine
RoRo	roll on, roll off
RQD	Rock Quality Description
RWCA	right of way certificate of access
S	sulfur
SCSE	AG/SAG mill specific energy
SEC	U.S. Securities & Exchange Commission
sec	second
SG	specific gravity
SGS	SGS Natural Resources
Si	silicon
SME	Society for Mining, Metallurgy & Exploration
SUP	special use permit
t	tonne (metric ton) (2,204.6 pounds)
t/d	tonnes per day
t/h	tonnes per hour

Abbreviation	Unit or Term
t/m3	tonnes per cubic meter
t/y	tonnes per year
TC	treatment charge
TDS	total dissolved solids
TK	traditional knowledge
TMS	trace mineral search
TTB	“terrazzo” tuff breccia
TWUA	temporary water use authorization
UAV	unmanned aerial vehicle
US	United States of America
USA	United States of America
USACE	United States Army Corps of Engineers
USDI	U.S. Department of the Interior
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
UTM	universal transverse mercator
V	volts
VAT	value-added tax
VMS	volcanogenic massive sulfide
VTEM	versatile time domain electromagnetic
WOTUS	waters of the U.S.
wt.	weight
XRF	x-ray fluorescence
XRT	x-ray transmission
Zn	zinc

1 EXECUTIVE SUMMARY

This report was prepared as an Initial Assessment Technical Report Summary in accordance with the Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 until 1305) for Contango ORE, Inc. (Contango Ore) by SRK Consulting (Canada), Inc. (SRK) on the Johnson Tract Polymetallic (Gold, Zinc, Copper, Silver, Lead) Project (the Project).

1.1 Property Description and Ownership

The Johnson Tract Project (the Project) is located in southcentral Alaska, 15 km west of Tuxedni Bay, along the west side of Cook Inlet approximately centered at a longitude of 152 58’ 40” West and latitude of 60 07’ 00” North. The Project is within the Chigmit Mountains along the southern margin of the Alaska Range. Elevations range from 90 m (197 ft.) to 1,200 m (3,937 ft.). The Project is located at a surface elevation of 535 m (1,755 ft.).

The Project area covers 8,513-hectares (21,036 acres) of land owned by Cook Inlet Region, Inc. (CIRI) as private inholdings within the Lake Clark National Park and Preserve (LCNPP). The Project area is divided into two blocks; the south block is held as fee simple land with CIRI owning both surface and subsurface mineral rights, whereas in the north block CIRI only owns the subsurface mineral estate and is guaranteed access. Contango Ore, through its wholly owned US subsidiary J T Mining, Inc. (J T Mining), holds a Lease Agreement with CIRI with an effective date of May 17, 2019. The Lease Agreement is for an initial 10-year term (Initial Term), followed by a five-year term (Development Term) to achieve a mine construction decision, and a production term that will continue for so long as operations and commercial production are maintained.

1.2 Geology and Mineralization

Regionally, the Project is hosted by the Talkeetna Formation of the Alaska Peninsular Terrane, a 3,280 – 8,202 ft. thick assemblage of Early Jurassic, intermediate volcanic and volcaniclastic rocks (age based on the abundance of fossil megafauna, Detterman et al., 1996). Plutonic rocks of the Alaska-Aleutian Range Batholith which are characterized locally by quartz diorite, quartz monzonite and tonalite phases with U-Pb zircon ages of 183 – 164 Ma (Rioux et al., 2007) are thrust onto the western edge of the Talkeetna Formation. These intrusive rocks are interpreted to be the contemporaneous, plutonic equivalent of the adjacent Talkeetna Formation, and together make up the Talkeetna Arc.

Locally, the Talkeetna Formation and intrusive rocks to the west are divided by the north-south striking Bruin Bay fault, a regional, transpressional fault system which was likely active in Early Paleogene time (Betka et al., 2017) and may have been responsible for the unroofing of the Talkeetna Arc as early as the Middle-Late Jurassic (cf. Wartes et al., 2013). Most of the work on the Talkeetna Arc has focussed on the section exposed northeast of Anchorage, in the Chugach and Talkeetna mountains, where geochemical and isotopic analysis of intermediate to felsic plutonic rocks suggest an intra-oceanic island arc setting (Clift et al., 2005, Rioux et al., 2007) with little to no input of continental crust material. However, a lack of evidence for mid-ocean ridge lavas, and thermobarometry requiring crustal thicknesses in excess of 30 km (Hacker et al., 2008) suggest that the Talkeetna Arc was likely a ‘mature’ island arc.

Mineralization is hosted within southeast dipping volcanic and volcaniclastic rocks of the early Jurassic Talkeetna Formation, overlain by middle to late Jurassic sedimentary rocks of the Tuxedni, Chinitna and Naknek formations. The mineralization forms a steeply southeast dipping, tabular silicified body that contains a stockwork of quartz-sulfide veinlets and brecciation, cutting through and surrounded by a widespread zone of anhydrite alteration (Proffett, 1993). Drilling has defined silicification and mineralization from surface to a vertical depth of approximately 350 m (1,150 ft.), over a total strike length in excess of 600 m (1,970 ft.), and to a maximum true width of 55 m (180 ft.). The main body of mineralization is bound on the east by the southeast dipping Dacite fault.

The Deposit consists of a complex stockwork system of high-angle, 1-10 cm wide veins and breccia zones containing quartz, sphalerite, chalcopyrite, galena, anyhydrite, barite, Fe chlorite and native gold (Steefel, 1987). In addition to veins and diffuse breccias, mineralization is also characterized by massive structureless intergrowths of quartz and sulfides, commonly with very coarse-grained sulfide mineralogy. Veins show characteristics associated with epithermal styles of mineralization. Open-space fill texture is common and breccias consist of subrounded fragments hosted within a sulfide-silica matrix. Early and relatively minor base metal mineralization (sphalerite) formed with the pervasive anhydrite-chlorite-sericite alteration. Later base (sphalerite-galena-chalcopyrite) and precious metal mineralization formed over several mineralizing events within the silicified stockwork vein zone. Re-Os dating of a bulk-sulfide separate, containing both chalcopyrite and pyrite from the footwall zone produced an age of 186 ± 6Ma for mineralization. This suggests that mineralization was contemporaneous with Talkeetna Arc volcanism and the deposition of Talkeetna Formation host rocks (earliest Jurassic, Detterman et al. 1996), and is consistent with shallow sub-seafloor setting for mineralization proposed by Steefel (1987).

1.3 Status of Exploration

The Johnson Tract Project has been subject to several historic drilling campaigns (1981-1997) with the most recent drilling campaigns occurring between 2019 and 2024. To date, 82,978 m of exploration drilling has been carried out, distributed in 269 drill holes, of which 120 NQ and HQ sized diamond drill holes were used to generate the geologic model for the Deposit.

The Authors are confident that the resulting data was acquired using adequate quality control procedures that meet industry best practices for a drilling-stage exploration project, and the data are adequate for purposes of mineral resource estimation.

1.4 Mineral Resource and Mineral Reserve Estimates

There is no Mineral Reserve Estimate for the Deposit at this time. The mineral resource estimate documented herein is an update of the initial Johnson Tract Deposit (the Deposit) Resource dated June 15th, 2020. New geologic domains were created in 2022 using Seequent Leapfrog Geo® software. Gold, silver, copper, lead and zinc grades were estimated using Geovia GEMS® software within interpreted mineralized zones. Modeled domains include the Johnson Tract Deposit domain (JT domain), the Footwall Copper Zone (FCZ) domain, and the Johnson Tract Extension (JT Ext) domain. The JT and FCZ domains are subdivided into 'higher grade' (JT HG and FCZ HG) and 'lower grade' (JT LG and FCZ LG) subdomains. Along strike to the northeast, the JT Ext domain consists of six distinct thin tabular wireframes The largest of these, the Johnson domain, contained a sufficient number of samples to allow meaningful spatial analysis and grades to be estimated by ordinary kriging. Grades in the other, smaller domains were estimated by inverse distance weighting. Drill density of the Johnson domain is high, allowing the categorization of an Indicated Mineral Resource in that zone. All other estimated mineralized material has been classified as Inferred. Figure 1-1 illustrates drill hole locations, the extents of the resource block model and the interpreted zones of mineralization.

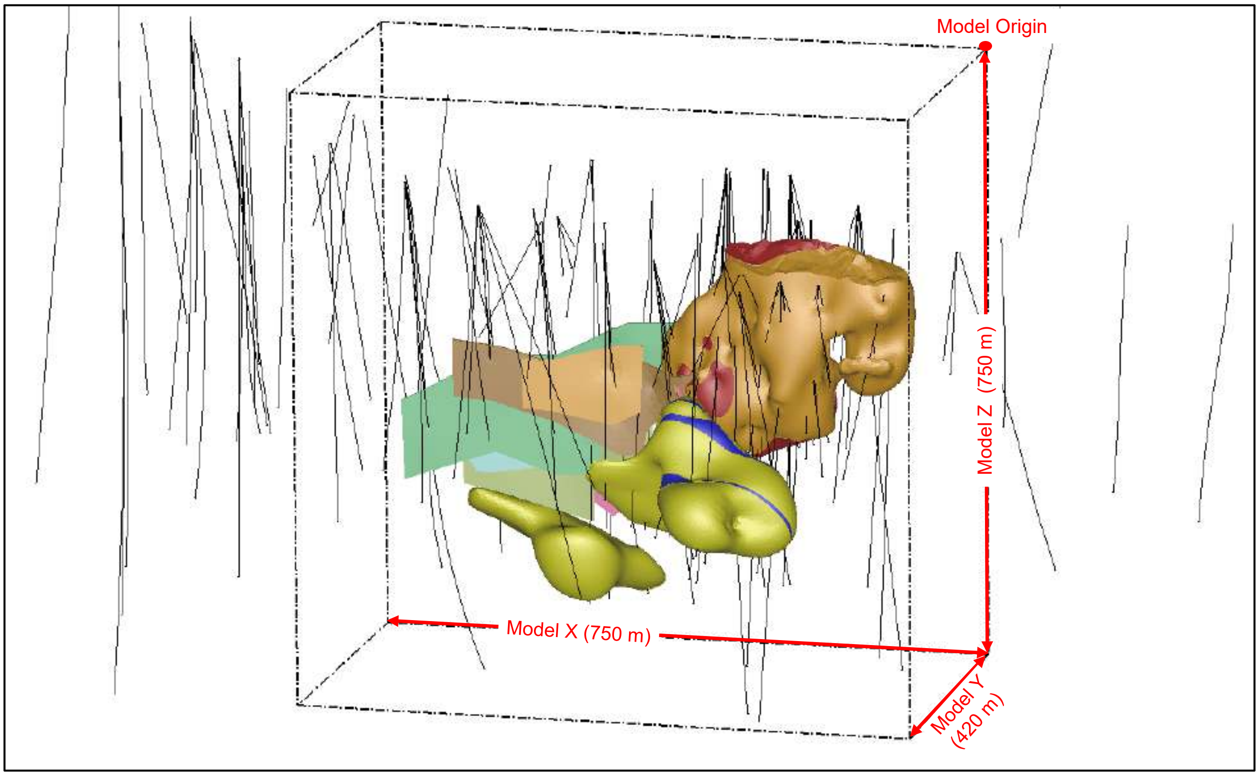


Figure 1-1 Johnson Tract Drilling, Mineralized Zones and Block Model Extents (view to ESE)

The majority of the mineral resource is contained within the JT HG domain. The JT HG domain consists of a single solid that is a steeply dipping, 25 to 70 m (82 to 233 ft.) thick, and extends 125 to 200 m (410 to 656 ft.) along strike and 250 m (820 ft.) vertically, with a moderate to steep plunge to the northeast. This domain was defined using logged heavily veined and brecciated silicified intervals and refined using a 2 g/t AuEq cut-off. The volume includes any internal waste that would likely be mined. The Leapfrog Geo Indicator Interpolant and the Economic Composite tools were also used as guides at a 3 g/t AuEq cut-off.

The resource estimate for the Deposit is reported in both Indicated and Inferred categories. There is no portion of the mineralized zones that is considered to comprise measured resources at this time. The resource block model was classified in accordance with the SEC S-K 1300.

This Johnson Tract Deposit resource estimate is based on assay data available as of April 6th, 2022. A total of 120 NQ and HQ sized diamond drill holes (42,575m; 139,678 ft.) were used to generate the new geological model for the Deposit, 75 of which intersected the interpreted mineralized zones in 7,633 m (25,042 ft.) of core with a total of 5,078 assays inside the mineralized solids.

Estimated blocks were initially classified based on spatial parameters related to drill spacing and configuration – namely calculated drill density and the distance to the closest composite. Blocks were initially assigned as inferred if drilled at a maximum spacing of 100 m (328 ft.) or within 30 m (98 ft.) of the closest sample. Within that volume, blocks having a maximum drill spacing of 40 m (131 ft.) were initially classified as Indicated Mineral Resource. Measures were then taken to assess the contiguous nature of classified blocks at a range of cut-off grades, such that the resource has reasonable prospects of eventual economic extraction by underground mining methods.

Sources of uncertainty associated with the collection of geologic and analytical information (sampling or drilling methods, data processing and handling) have largely been dealt with during exploration and drilling activities as described in later sections of this report. Uncertainty associated with geologic modeling are reflected in the lesser drill density (higher uncertainty) supporting the Inferred Mineral Resource. The Indicated Resource, in the JT Main zone, is supported by drilling at a minimum 40 m (131 ft.) spacing. Uncertainty attributable to estimation methodology is again largely a function of the density of available drill information. Areas with lower drill density have been estimated by geometric methods (inverse distance weighting) as opposed to geostatistical methods. Once in-fill drilling is available, that uncertainty will be reduced.

The contiguous, classified volume was further checked to manually include or exclude blocks that could not be practically handled in an underground mining scenario (pillars above and below cut-off). The resulting classified volumes are shown in Figure 1-2 and totalled in Table 1-1.

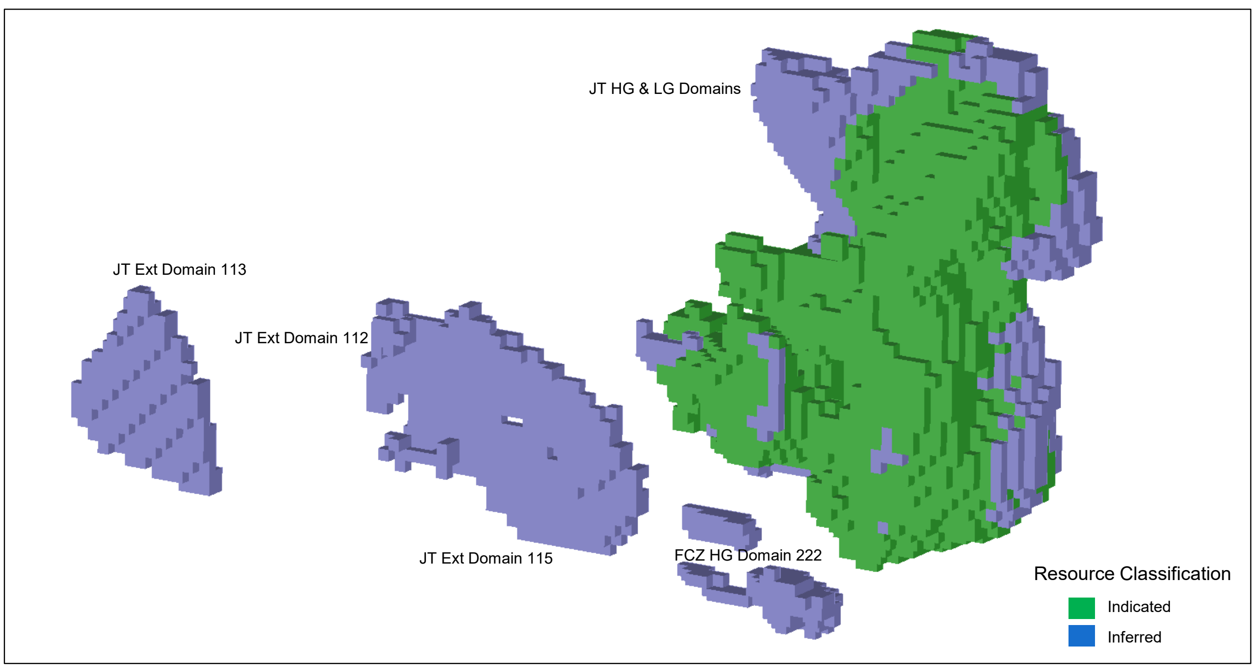


Figure 1-2 Johnson Tract 2022 Resource Classification (view to ESE)

Table 1-1 Johnson Tract Deposit Mineral Resource Estimate (3.0 g/t AuEq Cut-off)

Category	Tonnes (000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)
Indicated	3,489	5.33	6.0	0.56	0.67	5.21	9.39
Inferred	706	1.36	9.1	0.59	0.30	4.18	4.76
Contained Metal							
Category		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)
Indicated		598	673	43.1	51.5	400.8	1,053
Inferred		31	207	9.2	4.7	65.1	108

Notes
1. Includes all drill holes completed at Johnson Tract Deposit, with drilling completed between 1982 and most recently as October 2021
2. Assumed metal prices are US$1650/oz for gold (Au), US$20/oz for silver (Ag), US$3.50/lb copper (Cu), US$1/lb lead (Pb), and US$1.50/lb for zinc (Zn). Metal prices were established considering the review of three-year averages of published monthly values.
3. Gold Equivalent (AuEq) is based on assumed metal prices and payable metal recoveries of 97% for Au, 85% for Ag, 85% Cu, 72% Pb and 92% Zn from metallurgical testwork completed in 2022.
4. AuEq equals = Au g/t + Ag g/t × 0.01 + Cu% × 1.27 + Pb% × 0.31 + Zn% × 0.59
5. An average bulk density value of 2.84 used as determined by conventional analytical methods for assay samples
6. Capping applied to assays to restrict the impact of high-grade outliers
7. Preliminary underground constrains were applied, including the elimination of isolated or scattered blocks above cut-off grade to define the "reasonable prospects of eventual economic extraction" for the Mineral Resource Estimate
8. Mineral resources as reported are undiluted
9. Mineral resource tonnages have been rounded to reflect the precision of the estimate
10. Readers are cautioned that mineral resources that are not mineral reserves do not have demonstrated economic viability

The Indicated Mineral Resource is entirely within the JT Domains. Small volumes of the JT Extension and Footwall Copper Domains are included in the Inferred category. Table 1-2 provides domain breakdown of the 2022 resource by domain.

Table 1-2 Johnson Tract Deposit Mineral Resource Estimate by Domain (3.0 g/t AuEq Cut-off)

Domain	Indicated							Inferred						
	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)
JT Main	3,489	5.33	6.0	0.56	0.67	5.21	9.39	405	1.86	4.5	0.32	0.35	4.29	4.94
JT Ext'n								167	1.15	6.1	0.31	0.38	5.50	4.96
Copper								134	0.14	26.5	1.74	0.08	2.20	3.95
Total	**3,489**	**5.33**	**6.0**	**0.56**	**0.67**	**5.21**	**9.39**	**706**	**1.36**	**9.1**	**0.59**	**0.30**	**4.18**	**4.76**
Contained Metal														
Domain	Indicated							Inferred						
		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)
JT Main		598	673	43.1	51.5	400.8	1,053		24	59	2.9	3.1	38.3	64
JT Ext'n									6	33	1.1	1.4	20.2	27
Copper									1	115	5.2	0.2	6.5	17
Total		**598**	**673**	**43.1**	**51.5**	**400.8**	**1,053**		**31**	**207**	**9.2**	**4.7**	**65.1**	**108**

Contango Ore has elected to report this mineral resource at a higher cut-off grade of 3.0 g/t Au, given the high-grade nature of the Deposit. To illustrate sensitivity to AuEq cut-off, a range of cutoff grades are included in Table 1-3.

Table 1-3 Johnson Tract Deposit Mineral Estimate at Range of AuEq Cut-off Grades

COG	Indicated							Inferred						
AuEq (g/t)	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)
2.5	3,608	5.19	5.9	0.55	0.66	5.14	9.18	934	1.13	9.3	0.59	0.26	3.74	4.27
2.75	3,557	5.25	5.9	0.56	0.66	5.16	9.27	800	1.24	9.3	0.60	0.28	3.99	4.53
3.0	3,489	5.33	6.0	0.56	0.67	5.21	9.39	706	1.36	9.1	0.59	0.30	4.18	4.76
Contained Metal														
COG	Indicated							Inferred						
AuEq (g/t)		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)
2.5		602	684	43.7	52.5	408.8	1,065		34	279	12.2	5.4	77.0	128
2.75		600	675	43.9	51.8	404.6	1,060		32	239	10.6	4.9	70.4	117
3.0		598	673	43.1	51.5	400.8	1,053		31	207	9.2	4.7	65.1	108

1.5 Mining Methods

The Johnson Tract Project (the Project) is amenable for extraction via underground mining methods. Consideration of suitable mining methods for the Project was based on the Deposit size, geometry (e.g., thickness, continuity), average grade, desired production rate, geotechnical parameters, and economic assumptions. Following this assessment, two were selected for this study – long hole open stoping (LHOS) and cut and fill (CF).

Of the three geologic domains contained within the Project area (Johnson Tract Deposit, Footwall Copper Zone, and JT Extension), only material pertaining to the Johnson Tract Deposit was incorporated in the Life of Mine (LoM) plan envisioned in this study.

1.5.1 Geotechnical

Geotechnical domains were used to characterize the variability in ground conditions at the Project given the rock mass classification data. A cross section of the Deposit showing those domains is shown in Figure 1-3.

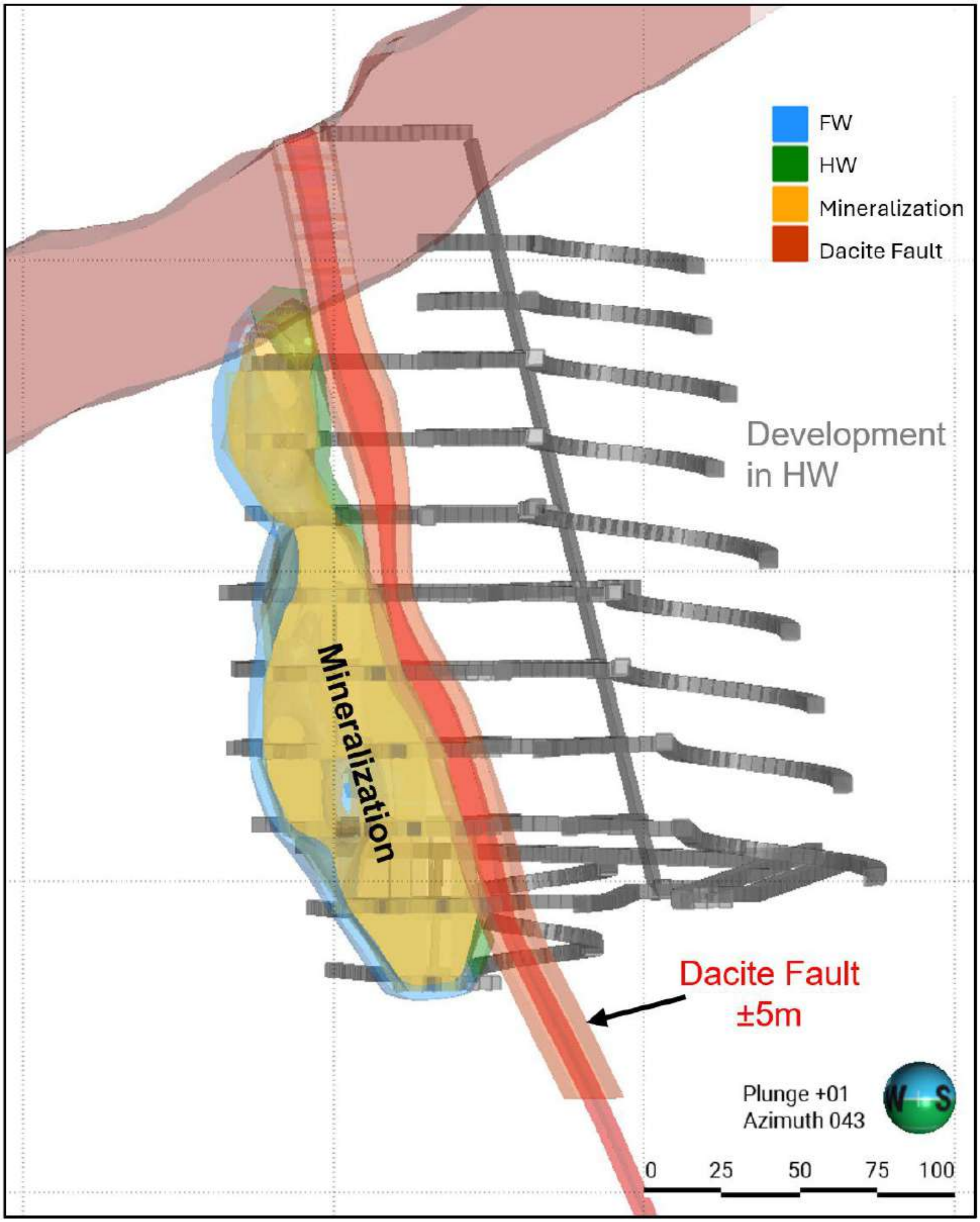


Figure 1-3 Geotechnical domains cut in cross section normal to the strike of the mineralized zone looking northeast

Major structures within the Deposit were reviewed to understand their impact on mine design and stope stability. Distance function in Leapfrog software was used to evaluate the thickness of the Dacite

Fault and proximity to the designed stopes. The majority of the stope hanging wall is within 1 m from the Dacite Fault contact and fault thickness can range from approximately 2 m to 15 m (6 ft. to 50 ft.). Where the HW interacts with the Dacite Fault with large thickness, adverse mining conditions are expected.

Stability analysis using industry accepted empirical methods was completed to inform excavation design, crown pillar, and ground support designs for development and production drifts.

The stability ground boundary method is based on the compilation of a large statistical data set collected from a wide range of geographic locations and stress conditions. While walls are generally stable, the hanging wall and back plot above the transition zones from potentially stable to potentially unstable where lower bound conditions are observed. When the Dacite Fault is the acting hanging wall, the empirical chart plots within the potentially unstable zone.

Ground support design was evaluated based on tunneling quality index Q by Grimstad & Barton (1993). Based on the Q parameters, the following ground support is recommended:

- Permanent drifts (5 x 5 m)
  - 2.4 m #7 resin rebar on 1.8 x 1.8 m spacing, welded wire mesh
  - Temporary drifts (4.5 x 5 m)
  - 1.8 m #7 resin rebar on 1.5 x 1.5 m spacing, welded wire mesh
- Development through Dacite Fault
  - Short rounds (approximately 2 m)
- 75 mm shotcrete (SC), 2.4 m Epiroc Pm12 or equivalent Swellex on 1x1 m spacing and mesh, 75 mm shotcrete
  - Spiling may be needed

Portal and incline locations were reviewed using four drillholes: JR95-081, GT23-005, GT23-001, GT23-006, within 200 m – 300 m (656 ft. – 984 ft.) of the proposed infrastructure. It was observed that the infrastructure is expected to be within the Dacite QFP unit and possibly in the Altered Dacite. Core photo review was generally representative of the logged RQD, similar to the mineralized zone. Good rock quality was observed within the Dacite QFP; however, core photos and RQD were not available in the Altered Dacite (JR95-081) for review. Fault damage zones were observed in core boxes, which were not always captured in the lithology log but represented in RQD data.

1.5.2 Hydrogeology

Hydrogeological conditions have been assessed during the 2023 drilling program (Piteau, 2023a) and resulting data used to provide an estimate of groundwater inflow rates over time as the underground development is carried out. This was originally done just for the access adit but updated by SRK in 2025 as part of this Initial Assessment.

To estimate inflows over the development schedule, the mine was separated into annual ‘blocks’ and a range of inflows was estimated for each block as the mine development progressed.

Hydraulic conductivity values for the different rock types and conditions were based on work discussed in Chapter 6, with an upper and lower range based on whether the rock mass was limited fracturing (‘Massive’) to a more broken up rock mass (‘Fractured’) to provide possible range inflows.

1.5.3 Mine Design

The Project will be primarily accessed via an inclined ramp (average grade of 6%) collared in the floor of the Johnson River Valley. Initially this incline will serve as an exploration access; during the mine’s production phase it shall be used for material movement out of the mine as well as for bringing supplies, personnel, and equipment into the mine. A conceptual incline design was provided to incorporate into the overall mine design at the outset of this study. In addition to being suitable for the planned exploration activity, the collar location and ramp azimuth were selected for their favorable geotechnical and hydrogeological qualities, as well as that the rock to be excavated would be non-acid generating.

1.5.4 Underground Development

Lateral development will include the construction of a ramp, level accesses, hanging wall drives, Run of Mine (RoM) drives, slot drives, and infrastructure excavations. This development will be carried out using conventional underground equipment, including jumbos, rock bolters, and Load-Haul-Dump (LHD) equipment.

The lateral and ramp capital development has been given a 15% “growth allowance” in the Deswik mine schedule to account for additional underground infrastructure such as re-muck bays, sumps, storages, cap and powder magazines, electrical station cut-outs, etc. The mine layout for the Project is shown in Figure 1-4, with a closer view of the production mining area depicted in Figure 1-5.

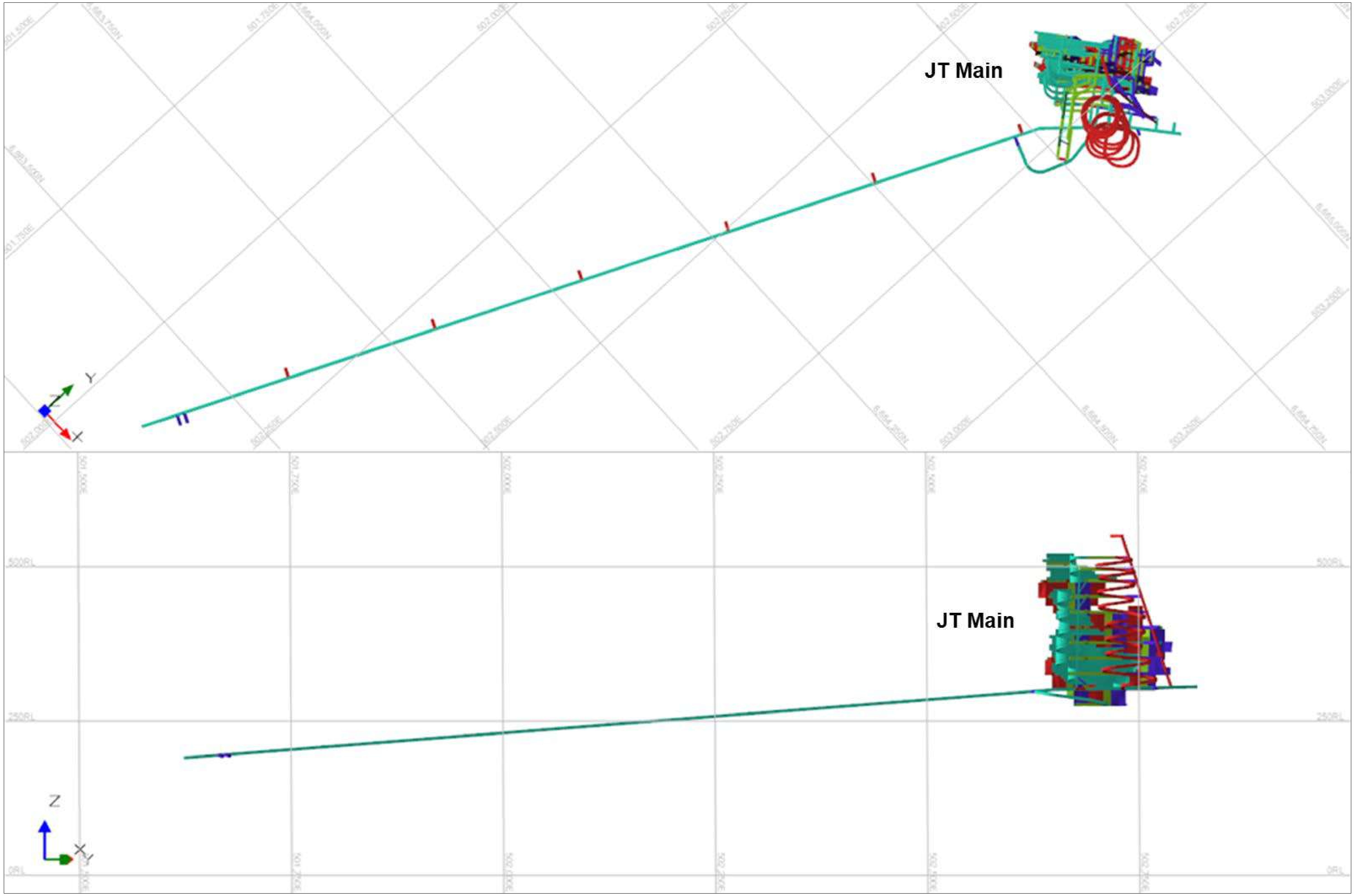


Figure 1-4 Plan View (Top) and Long Section Looking Northwest (Bottom) of the Johnson Tract Project

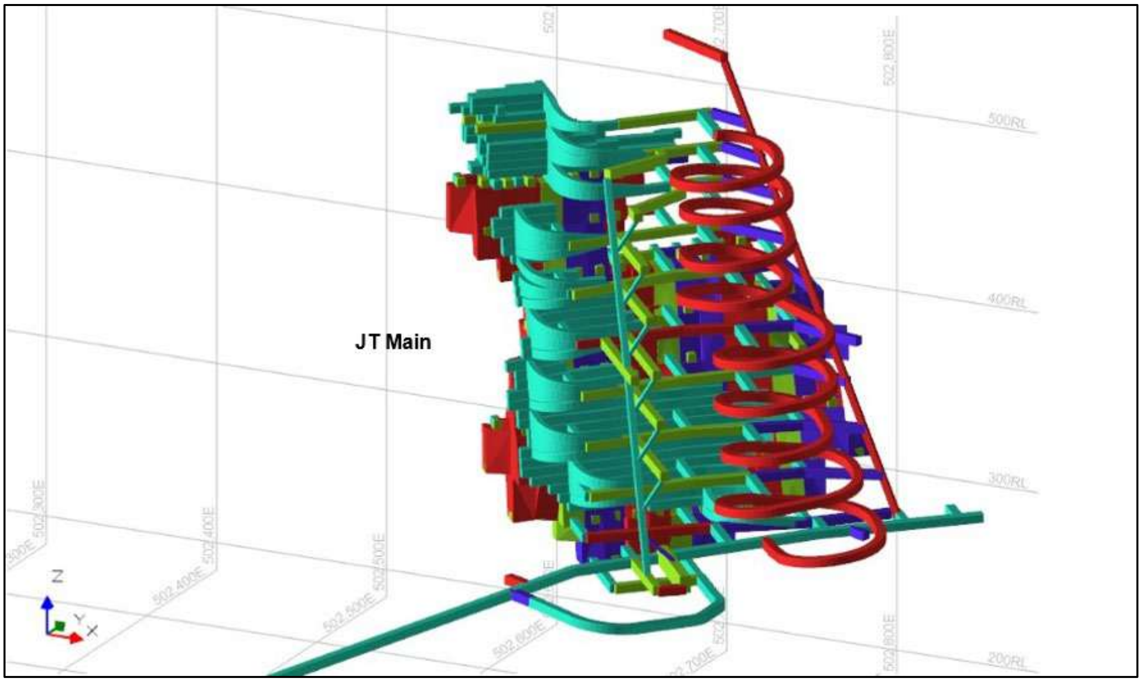


Figure 1-5 Isometric View of Production Mining Area (Looking Northwest)

Mining horizons are accessed from a spiral, inclined ramp which connects to a HW drive on each level. The HW drives follow the contour of the mineralization and are offset toward the southeast at a minimum of 20 m to minimize adverse reactions from production blasting activity. Conventionally, mine infrastructure is situated on the FW side of mineral deposits; however, as the rock conditions in the HW QFP are better than in the FW material (tuff), the infrastructure for the Project is located in the HW.

The mineralized zone is accessed using crosscuts collared from the HW drive that are angled roughly perpendicular to the Dacite Fault. The number of crosscuts per level has been minimized to reduce the number of times the Dacite Fault is crossed and thus reduce the risks associated with the long-term stability of the excavations that intersect the fault.

A representative depiction of the stoping layout at the Project are shown in Figure 1-6 (plan view).

Figure 1-6 Typical Level Layout (Plan View)

1.5.5 Long Hole Open Stoping

The stopes are primarily designed for extraction via the transverse Longhole Open Stoping (LHOS) mining method, with longitudinal retreat Longhole Open Stoping (LHOS) and Cut-and-fill (C&F) (both overhand and underhand) making up the remainder. The transverse LHOS mining method is suitable for thicker mineral deposits, as it involves establishing development perpendicular to the mineralization's strike in order to access stopes. The steeply dipping nature of the mineralized zone is well-suited for LHOS methods and should allow for a higher production rate.

1.5.6 Mechanized Cut and Fill

Mechanized cut-and-fill (C&F) mining methods are proposed for extraction of material below the crown pillar and against the Dacite Fault. Overhand C&F will be utilized in the area under the crown pillar, with the initial cut developed at the same elevation as the level access. Mineralized material will be removed in a similar fashion as other lateral development, using a conventional drill-blast-muck-support cycle.

1.5.7 Development Sequence

Underground development will commence with the inclined ramp from surface in Year -5, from which multiple diamond drilling bays will be constructed to enable further exploration of the Deposit. The underground development will then be paused while the exploration drilling and related technical studies are completed. It is assumed that all of this work will be completed in the Project's Exploration Phase.

Following the successful completion of the requisite studies, underground development to the production area will commence at the beginning of Year -2. The mine development has been front-loaded in the schedule such that multiple mining fronts can be accessed and thus enable a quicker ramp-up in production. Year -2 features capital development almost exclusively, with operating development becoming more prevalent in Year -1. Development within mineralization begins in Year -1 and continues until the end of mine life.

1.5.8 Production Sequencing

First production from LHOS activities is planned for the latter half of Year -1, with longhole stoping activities continuing until the final stope is mined in Year 7. The stope sequence will start in the southwest corner of the bottom level and continue in a bottom-up manner. The stopes will be sequenced to retreat back to each RoM crosscut.

The cut and fill production begins toward the end of Year 3 to supplement the LHOS mining, as the latter begins to decline in Year 4 due to a lack of available mining fronts. The overhand C&F below the crown pillar is initiated first, followed by the underhand C&F against the Dacite Fault. In the final two years of the LOM, (Years 6 and 7), the C&F production is approximately equal to that produced from LHOS activities.

1.6 Mine Operations and Infrastructure

The Project's infrastructure, both in terms of quantity and location, is dictated by the progression of the LOM schedule and is based on SRK's experience with similar types of mines. SRK reviewed a number of recent mining projects and studies in Alaska and Canada, as well as internal databases to form the basis for the UG infrastructure requirements.

1.7 Mineral Processing and Metallurgical Testing

Metallurgical characterization of composite samples from the Johnson Tract Deposit has been carried out by Anaconda, Hazen, and Westmin historically, with the most recent phase of test work conducted at Blue Coast Research Ltd. (BCR) in 2021 and 2022 (Hall, 2022). Flowsheet development has focused primarily on the production of separate flotation concentrates for copper, zinc, and lead, and pyrite with the potential cyanidation of flotation concentrates and flotation tailings, to achieve additional gold recovery. The BCR test work program consisted of a comminution study, flotation optimization, mineralogical analysis, locked cycle testing, a limited cyanidation program, and variability test work on a Master Composite.

The Master Composite contains a component of gravity recoverable gold, which requires finer grinding to achieve liberation; therefore, gravity processing is not currently recommended for the Project to increase gold recoveries. The majority of the contained gold in the Master Composite reported to the final copper and lead concentrates, and to a lesser extent, the zinc concentrate. Additional gold recovery can be realized in two ways: By regrinding of the zinc rougher tailings and flotation to produce a pyrite concentrate grading 64 g/t Au; and through cyanidation of the flotation tailings to achieve a further 11% gold extraction.

1.8 Capital and Operating Costs

The Johnson Tract Project (the Project) involves two categories of expenditures which are incorporated within the technical cash flow model. They include:

1. Capital Expenditures (discussed in Section 18.2) and
2. Operating Expenditures (discussed in Section 18.3).

By definition, capital refers to the expenditures on major equipment and facilities while operating includes expenditures on the resources required to support the ongoing production.

There are two phases or periods of the Project life within this study where expenditures are incurred:

1. Pre-Production Period and
2. Sustaining Period.

The Pre-Production Period (or the construction phase) within the mine's life cycle follows the exploration phase and occurs before the Sustaining Period. During the Pre-Production period, expenditures are incurred prior to the mine having reached production in reasonable commercial quantities and are deemed to be capital in nature and qualify for an annual depreciation allowance. The Pre-Production Period for the Project begins in Year -5 and ends in Year -1. Expenses prior to this date are considered "sunk costs" and not included in this report or within the financial analysis.

Production in reasonable commercial quantities refers to the level of output, not profit or loss. A mine will normally be considered to have attained production in reasonable commercial quantities on the first day of the first month of the consecutive three-month period where the processing plant first operates at 60% of its rated capacity, provided the mine is the sole source of ore to the processing plant.

The Sustaining Period would also commence when the mine is in the condition necessary for it to be capable of operating in a manner in which it can be managed by the mine, not by a capital project team. The Sustaining Period for the Project as outlined continues for 7 years following the Pre-Production Period.

All costs generated during the Pre-Production Period are capitalized as pre-production capital. During the Sustaining Period, expenditures are either classified as operating or sustaining capital.

1.9 Capital Cost Estimate

For the purposes of this IA, expenses incurred before Year -5 are considered to be sunk costs and are neither provided in this report nor included in the cost model and cash flow.

The five-year Pre-Production Period begins in Year -5 and is completed at the end of Year -1. This is the period of initial capital expenditure. During this time, the mine initializes lateral and vertical development, purchases mobile equipment, develops surface infrastructure and incurs some capitalized operating costs to support pre-production mining of mineralized material. This work is also supported by a Project team and other indirects which is estimated to be 3.5% of the initial capital costs. The total estimate for this period is $213.6 inclusive of $36.0M in contingency.

The ongoing, sustaining capital costs for the remaining life of the mine (LoM) during the production phase is estimated at $61.3M. This includes purchases of mobile equipment, ongoing construction and improvements on surface and underground infrastructure, requisite underground capital development, and mine closure. Contingency of the amount $12.3M is applied to all sustaining costs for the duration of the life of mine. This is summarized in Table 1-4.

Table 1-4 Johnson Tract Project LOM Capital Cost Estimate (US$M)

Capital Expenditures	Total ($M)	Initial Capital ($M) Years -5 to -1	Sustaining Capital ($M) Years 1 to 17
Project Team/Indirects	5.0	5.0	0.0
Development – Lateral	28.4	19.5	8.9
Development – Vertical	1.0	0.6	0.4
Mobile Equipment	21.4	18.9	2.5
Surface Infrastructure	92.7	91.5	1.2
Underground Infrastructure	19.3	13.3	6.0
Closure	30.0	0.0	30.0
Capitalized Operating	28.8	28.8	0.0
Contingency	48.3	36.0	12.3
Capital Total	**274.9**	**213.6**	**61.3**

The total estimated capital cost incurred for both the Pre-Production Period and the Sustaining Period of the LoM is $274.9M.

1.10 Operating Cost Estimate

The operating costs are comprised of all costs up to and including processing at an off-site facility. This is inclusive of supply, equipment, and labor costs for all operating activities such as direct mining and stockpiling of RoM on surface, shipment of RoM via roadways and water, processing, and the site G&A expenses. The operating cost estimate for this Initial Assessment is within the range of ±50%. A contingency of 10% has also been included in this estimate.

The total operating cost over the Project's LOM period (minus the costs previously capitalized) is estimated to be US$484.8M. A summary of the Project's operating costs in Table 1-5.

Table 1-5 Johnson Tract Project – LOM Operating Cost Estimate (US$M)

Operating Expenditures	Total ($M) Years 1 to 7	$/tonne Years 1 to 7
LHOS Stope Production	68.3	26.24
LHOS Operating Development	22.7	8.72
C&F Operating Development	16.3	6.27
Ore/Waste Handling	12.9	4.96
Services/Ancillary	53.9	20.68
Maintenance	11.3	4.32
Supervision and Technical	28.0	10.74
Mine Total	**213.4**	**81.94**
Mill	**102.9**	**39.50**
Transport to Dock	11.6	4.45
Surface Transportation (Barge)	85.0	32.63
Surface Transportation (Truck to Mill)	18.8	7.24
G&A	53.1	20.39
G&A and Transport	**168.5**	**64.70**
Operating Total	**484.8**	**186.14**

1.11 Economic Analysis

The owner of the Project has elected to include a preliminary economic estimation for this study. It is understood that under S-K 1300 regulations the owner may, but is not required to, include an economic analysis in the Initial Assessment. It is understood and herein stated clearly that this is not a Mineral Reserve, but a Mineral Resource and as such does not have demonstrated economic viability. Indicated and Inferred Mineral Resources are included in this study and the estimation for costs are preliminary in nature and satisfy conditions set forth in §229.1302(d)(4)(ii) (Item 1302(d)(4)(ii) of Regulation S-K).

The estimated post-tax NPV of the Johnson Tract Project, using a discount rate of 5%, is $224.5M with 25% contingency on capital costs and 10% on operating costs. The internal rate of return (IRR) is 30.2% post-tax. The corresponding pre-tax NPV and IRR were $359.0M and 37.4%, respectively.

Gold contributes significantly, in the amount of 70% to the overall revenue of this study. The gold value was adjusted for the percentage of the gold payable, refining cost, and process recovery to calculate net revenue from gold. The copper, zinc and lead prices were used along with the costs to refine and transport the concentrate recovered to calculate the net revenue from those contributing metals. A 2% NSR royalty is applied to copper and silver while a 4% NSR royalty is applied to gold.

The detailed financial output and financial outcome are presented in Table 1-6.

Table 1-6 Financial Model Summary

ITEM	Description	Unit	Value
Finance			
	NPV (Pre-Tax)	US$ (m)	359.0
	IRR (Pre-Tax)	%	37.4%
	NPV (Post-Tax)	US$ (m)	224.5
	IRR (Post-Tax)	%	30.2%
	Non-Discounted Payback Period	yr	1.1
	Discounted Payback Period	yr	1.3
Economics Summary			
	Revenue (NSR less Royalties)	US$ (m)	1,296.7
	Operating Costs	US$ (m)	484.8
	Initial Capital Costs	US$ (m)	213.6
	Sustaining Capital Costs	US$ (m)	61.3
	Payable Metal Value		
	Copper	US$ (m)	120.2
	Zinc	US$ (m)	274.2
	Lead	US$ (m)	36.6
	Gold	US$ (m)	1,014.0
	Silver	US$ (m)	5.1
Initial Capital			
	Project Team	US$ (m)	5.0
	Development – Lateral + Ramp	US$ (m)	19.5
	Development – Vertical	US$ (m)	0.6
	Mobile Equipment	US$ (m)	18.9
	Surface Infrastructure	US$ (m)	91.5
	Underground Infrastructure	US$ (m)	13.3
	Closure	US$ (m)	0.0
	Capitalized Operating	US$ (m)	28.8
	Contingency	US$ (m)	36.0
	Initial Capital Total	**US$ (m)**	**213.6**
Sustaining Capital			
	Project Team	US$ (m)	0.0
	Development – Lateral + Ramp	US$ (m)	8.9
	Development – Vertical	US$ (m)	0.4
	Mobile Equipment	US$ (m)	2.5
	Surface Infrastructure	US$ (m)	1.2
	Underground Infrastructure	US$ (m)	6.0
	Closure	US$ (m)	30.0
	Capitalized Operating	US$ (m)	0.0

ITEM	Description	Unit	Value
	Contingency	US$ (m)	12.3
	Sustaining Capital Total	**US$ (m)**	**61.3**
Operating			
	Mining	US$ (m)	213.4
	Mill	US$ (m)	102.9
	Transport to Dock	US$ (m)	11.6
	Surface Transportation (Barge)	US$ (m)	85.0
	Surface Transportation (Truck to Mill)	US$ (m)	18.8
	G&A	US$ (m)	53.1
	Operating Total	**US$ (m)**	**484.8**
Ore Production			
	Ore Milled	mt	2.7
	Payable Metal		
	Copper	mlb	32.2
	Zinc	mlb	279.3
	Lead	mlb	41.8
	Gold	moz	0.5
	Silver	moz	0.5
Metrics			
	Mine Cost per Tonne Feed	US$/tonne	85.97
	Cash Cost per Tonne Feed	US$/tonne	163.36
	All-In-Sustaining Costs*	US$/GEO	860.00
	Average Annual GEO Produced	Au Eq. Oz. / Yr.	102,258
	Average Annual GEO Payable	Au Eq. Oz./ Yr.	90,692
Mining Method			
	LHOS Mining Cost per Tonne Feed	US$/tonne	85.24
	C&F Mining Cost per Tonne Feed	US$/tonne	90.89

* Initial capital costs in the amount of $213.6 million (pre-production costs) are excluded from AISC

1.12 Permitting Requirements

The Project is currently permitted for exploration activities and associated infrastructure at the Johnson Camp. Special Use Permits (SUPs) have been in place annually to support baseline data collection activities within waterways and on NPS-administered public lands associated with easement areas.

As the Project moves toward the development of feasibility-level engineering studies, additional and comprehensive environmental baseline studies will need to be prepared and used to inform consultation with stakeholders and regulators for review under the National Environmental Policy Act (NEPA). The timing of the NEPA processes can be quite variable and may affect project construction if not carefully managed.

In addition to the NEPA process, multiple major state and federal permit applications and consultations outlined in Chapter 17 will likely be required prior to authorization of the proposed mine, road, and port facility. Some of these authorizations have been granted at the time of this report and are detailed in Chapters 3 and 17.

1.13 Conclusions and Recommendations

1.13.1 Infrastructure

The Project site currently possesses little infrastructure, consisting of an exploration camp and a gravel airstrip. Much of the surface infrastructure will be constructed during the Pre-Production Period, with underground infrastructure requirements being driven by the development of the mine.

The port facility to be constructed will provide the primary means for moving people, supplies, and equipment to/from the site as well as moving mineralized material from the site to be processed. A series of roads and bridges connecting the port facility, camp and portal area will be required. The airstrip will continue to be used for emergency transport of personnel and supplies.

As the processing of mineralized material will be occurring off-site, the surface infrastructure footprint will remain rather compact, with the primary items to consist of camp and associated buildings, offices, dry and shop/warehouse facilities at the portal area, storage areas, stockpiles areas, power supply, water management facilities and a barge landing site. Following the completion of mining activities the majority of the surface infrastructure will be removed, and the site restored to a natural state.

1.13.2 Environmental, Permitting, and Social Impacts

The Project is currently permitted for exploration activities and associated infrastructure at the Johnson Camp. Special Use Permits (SUPs) have been in place annually to support baseline data collection activities within waterways and on NPS-administered public lands associated with easement areas.

Construction of the proposed mine facilities located on land owned by CIRI, and the proposed transportation corridor and port easements located on land administered by the NPS, would require terrain modification and discharge of clean fills. Due to the number of wetlands within these areas, avoiding all discharges of fill into waters of the U.S. (WOTUS) would not be practicable. Therefore, the U.S. Army Corps of Engineers (USACE) would likely have authority over these actions and would be required to determine the Least Environmentally Damaging Practicable Alternatives to authorize under Section 404 of the Clean Water Act (CWA).

As the Project moves toward the development of Feasibility-level engineering studies, additional and comprehensive environmental baseline studies will need to be prepared and used to inform consultation with stakeholders and regulators for review under NEPA. A thoughtfully designed mine plan that minimizes impacts and presents effective mitigation measures (if necessary) is paramount to a successful NEPA process and the successful establishment of a future mining operation.

In addition to the NEPA process, completion of major state and federal permit applications and consultations listed in Section 17.3.2 will likely be required prior to authorization of the proposed mine, road, and port facility.

1.13.3 Mining Methods

The Johnson Tract Project is amenable to underground mining given the nature and location of the Deposit, and the mine plan generated during this study, which is based on Indicated and Inferred Mineral Resources. The life of mine plan is comprised of 98.7% Indicated resources and 1.3% Inferred resources. The mining methods proposed are common in North America and should be easily implemented, with the ability to draw on an experienced mining workforce in the region.

Following development of the underground access and completion of additional technical studies, the development of the mine will commence in Year -2 with mineralization material first extracted in Year -1. The mine quickly reaches peak production using the longhole open stoping method and later utilized cut and fill mining (both over- and underhand approaches) to supplement production as the availability of stopes begins to decrease later in the mine life. Year 7 marks the final year of production, after which site closure and remediation activities begin.

Further studies are required to better understand the geotechnical and hydrogeologic conditions associated with the Deposit which may dictate changes to the mine design and production rate, or result in additional costs being incurred.

It is the QP’s opinion that the life of mine design and schedule is reasonable for an Initial Assessment-level of study. The additional data collection and technical studies proposed, along with the upgrading of Mineral Resource confidence levels, will benefit further stages of study.

1.13.4 Mineral Processing and Metallurgical Testing

Metallurgical testing of a composite sample from the Johnson Tract Deposit has resulted in the following results and conclusions:

- Quantitative mineralogy by QEMSCAN indicated that at an eighty percent passing size(P80) of 100 µm chalcopyrite and sphalerite were well-liberated, whereas galena and pyrite were moderately liberated.
- Grindability testing indicated that the Master Composite was moderately hard in terms of Bond Ball Work Index and moderately abrasive.
- The Johnson Tract Composite contains a component of gravity recoverable gold, but this gold requires finer grinding to achieve liberation; therefore, gravity processing is not currently recommended for the Project to increase gold recoveries.
- Flotation test work using a traditional selective flotation process can produce good grades of copper, lead and zinc concentrates, at good base metal recoveries.

- The majority of the contained gold in the Master Composite reported to the final copper and lead concentrates, and to a lesser extent, the zinc concentrate. Additional gold recovery was realized in two ways:
- By regrinding of the zinc rougher tailings and flotation to produce a pyrite concentrate grading 64 g/t Au.
- Through cyanidation of the flotation tailings to achieve a further 11% gold extraction.

Based on the work conducted to date, the following additional testwork is recommended:

- Further grindability testing on domain and variability composites from the Johnson Tract Deposit.
- Evaluate the response of domain and variability composites to the process flowsheet developed in the BCR program.
- Conduct further test work to increase recovery to lead concentrate and reduce zinc misplacement to the lead concentrate.
- Confirm cyanidation recovery on the combined cleaner tailings (Zn 1st cleaner tailings, Au 1st cleaner tailings)
- Gold focused mineralogy including a trace mineral search (TMS) and D-SIMS to evaluate the association of gold with sulfide minerals.
- Given the expected high-cost of shipping material for processing, the Johnson Tract project may be a good candidate for ore-sorting of mine production and testing is recommended for the Project.

1.13.5 Capital and Operating Costs

The total life of the project is estimated at 12 years, with the initial 5 years considered the Pre-Production Phase, with the remaining 7 years comprising the Production Phase once 60% of commercial production has been achieved. The capital and operating costs for the Project have been estimated with an expected accuracy of ±50% of the final cost, and the contingency aligns with the allowances specified under S-K 1300 for an Initial Assessment (IA). The Pre-production capital cost is estimated at $213.6 million, while the Sustaining capital costs over the life of mine are projected to total $61.3 million, bringing the total capital cost, inclusive of Pre-production and Sustaining expenditures, to $274.9 million. A contingency of 25% has been added to all items.

Operating costs over the LOM are estimated at $484.8 million, corresponding to a unit cost of $186.14 per tonne of mineralized material processed. A contingency of 10% has been assumed in the operating costs.

The completion of additional data collection and technical studies will inform changes to the mine design and schedule during the next stage of study, which will in turn allow for further refinement of the expected capital and operating costs.

1.13.6 Economic Analysis

The Initial Assessment (IA) is preliminary in nature, and as such there are Indicated and Inferred Mineral Resources included in the life of mine plan, schedule. These resources are considered too geologically speculative to apply the economic considerations necessary to categorize them as Mineral Reserves, and there is no guarantee that the outcomes outlined in the IA will be achieved.

Based on the assumptions detailed in this report, the Johnson Tract Project demonstrates positive after-tax financial results. The post-tax net present value (NPV) at a 5% discount rate is estimated at $224.5 million, with an internal rate of return (IRR) of 30.2%.

The Payback Period is defined as the time following the commencement of the commercial production that is required to recover the initial expenditures incurred in developing the mine, inclusive of all capital costs in the Pre-Production period. The project possesses an undiscounted Payback Period of 1.1 years, and a discounted Payback Period of 1.3 years.

The Johnson Tract Project is most sensitive to changes in the gold selling price as it drives 70% of the contained metal value, followed by variations in capital costs and operating costs, as shown in Table 1-7.

Table 1-7 NPV Sensitivity to Au Price

Gold Price (US$/tr. Oz.)	Post-Tax NPV (US$M)
1,650	107.7
1,800	140.9
2,000	181.0
2,200	224.5
2,400	267.9
2,600	311.3
2,800	354.8
3,000	398.2
3,500	506.8
4,000	615.4

2 INTRODUCTION

2.1 Registrant for Whom the Technical Report Summary was Prepared

This Technical Report Summary was prepared in accordance with the Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 through 1305) for Contango ORE, Inc. (Contango Ore) by SRK Consulting (Canada), Inc. (SRK) on the Johnson Tract Polymetallic (Gold, Zinc, Copper, Silver, Lead) Project (the Project).

2.2 Terms of Reference and Purpose of the Report

The quality of information, conclusions, and estimates contained herein are consistent with the level of effort involved in SRK's services, based on: i) information available at the time of preparation and ii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Contango Ore subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Contango Ore to file this report as a Technical Report Summary with American securities regulatory authorities pursuant to the SEC S-K regulations, more specifically Title 17, Subpart 229.600, item 601(b)(96) – Technical Report Summary and Title 17, Subpart 229.1300 – Disclosure by Registrants Engaged in Mining Operations. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party are at that party's sole risk. The responsibility for this disclosure remains with Contango Ore.

The purpose of this Technical Report Summary is to report mineral resources, and exploration results.

The effective date of this report is May 12, 2025.

The Initial Assessment is preliminary in nature, that it includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the Initial Assessment will be realized. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

2.3 Sources of Information

This report is based in part on internal Company technical reports, previous feasibility studies, maps, published government reports, Company letters and memoranda, and public information as cited throughout this report and listed in the References Chapter 24.

Reliance upon information provided by the registrant is listed in the Chapter 25 when applicable.

2.4 Details of Inspection

Table 2-1 summarizes the details of the personal inspections on the property by each qualified person or, if applicable, the reason why a personal inspection has not been completed.

Table 2-1 Site Visit

Expertise	Date(s) of Visit	QP	Details of Inspection	Reason why a personal inspection has not been completed
Mining Engineering, Infrastructure, ESG	Aug. 26, 2024	SRK Consulting (Canada) Inc	On site inspection to confirm locations for infrastructure, roads, and underground mine portal	
Geology, Resource	September 11, 2019	Advantage Geoservices	Validation of geology and drilling for resource calculations.	

2.5 Report Version Update

The user of this document should ensure that this is the most recent Technical Report Summary for the property. This Technical Report Summary is not an update of a previously filed Technical Report Summary but is an update of and replaces the most recent National Instrument (NI) 43-101 Technical Report titled Updated Mineral Resource Estimate and NI 43-101 Technical Report for the Johnson Tract Project, Alaska, with an Effective Date of July 12th, 2022.

2.6 Mineral Resource and Mineral Reserve Definitions

The terms “mineral resource” and “mineral reserves” as used in this TRS have the following definitions:

Mineral Resources

7 CFR § 229.1300 defines a “mineral resource” as a concentration or occurrence of 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 economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled. A “measured mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the Deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.

An “indicated mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the Deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.

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. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project and may not be converted to a mineral reserve.

Mineral Reserves

17 CFR § 229.1300 defines a “mineral reserve” as an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted. A “proven mineral reserve” is the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource. A “probable mineral reserve” is the economically mineable part of an indicated and, in some cases, a measured mineral resource.

3 PROPERTY DESCRIPTION

The Johnson Tract Project (the Project) is located in southcentral Alaska, 15 km west of Tuxedni Bay, along the west side of Cook Inlet approximately centered at a longitude of 152 58’ 40” West and latitude of 60 07’ 00” North. The Alaska Native village of Ninilchik (845 population, 2020 Decennial Census, US Census Bureau) is the closest community to the Project, located approximately 60 km (37 mi) away on the eastern side of Cook Inlet. Anchorage (291,247 population, 2020 Decennial Census, US Census Bureau), the closest city, is located approximately 200 km (124 mi) to the northeast (Figure 3-1).

The Project area covers 8,513-hectares (21,036 acres) of land owned by Cook Inlet Region, Inc. (CIRI) as private inholdings within the Lake Clark National Park and Preserve (LCNPP). The Project area is divided into two blocks; the south block is held as fee simple land with CIRI owning both surface and subsurface mineral rights, whereas in the north block CIRI only owns the subsurface mineral estate and guaranteed access. The Project is within the Chigmit Mountains along the southern margin of the Alaska Range. Elevations range from 90 m (197 ft.) to 1,200 m (3,937 ft.). The Johnson Tract Deposit is located at a surface elevation of 535 m (1,755 ft.). The Project area is covered by topographic map sheet KENAI (A-8), Alaska.

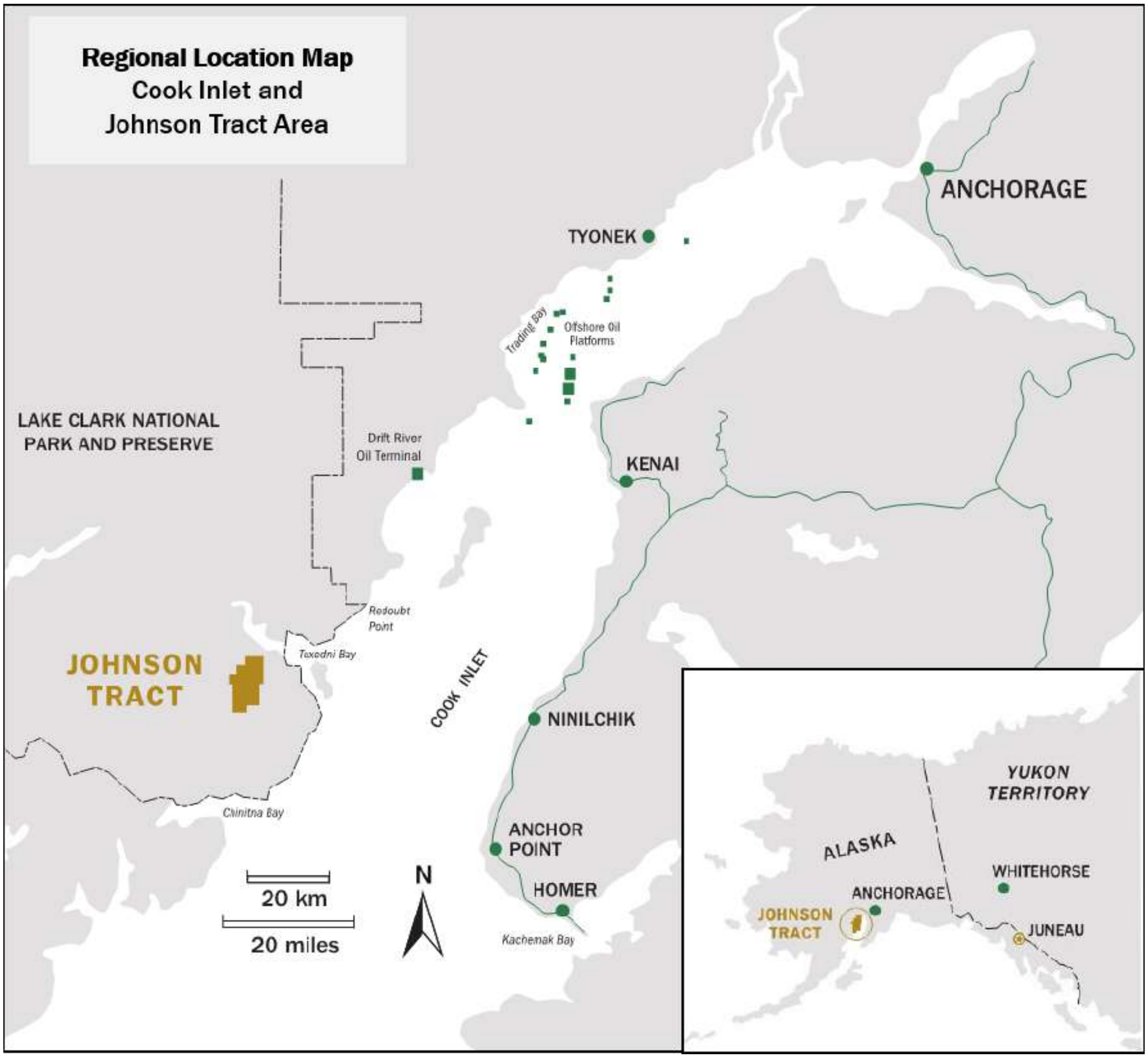


Figure 3-1 Location of the Johnson Tract Project

3.1 Land Status

The 8,513-hectare (21,036 acre) Project is composed of two adjacent blocks of land as shown in Figure 3-2.

- The southern block (South Tract) totals 4,626 hectares (11,431 acres) of private land, with CIRI owning both surface and subsurface mineral rights. This block hosts the known Johnson Tract Deposit, and the existing airstrip and camp.
- The northern block (North Tract) totals 3,887 hectares (9,605 acres) of subsurface mineral estate along with guaranteed access and hosts several prospects.

The Project area is a private inholding within LCNPP, and the property was conveyed to CIRI under the terms of the Alaskan Native Claims Settlement Act (ANCSA) and the Cook Inlet Land Exchange. The land exchange was ratified by an act of Congress and approved by the Alaska Legislature in 1976, whereby CIRI is entitled to mutually agreed upon transportation and port easements through LCNPP lands for the express purpose of mineral extraction. Table 3-1 summarizes the characteristics of the North and South Tracts.

Table 3-1 Johnson Tract Properties

Tract	Land Status	Area (hectare)
North	Mineral Estate	3,887
South	Surface and Mineral Estate	4,626
	Total	**8,513**

South Tract Area Description (Fee Simple, Surface and Mineral Estate)

Seward Meridian, Alaska, T1S, R21W
Township 1 South Range 21 West
Sections 3 to10, inclusive,
Sections 15 to 22, inclusive,
Sections 29 and
Section 30

North Tract Area Description (Mineral Estate Only)

Seward Meridian, Alaska, T1N, R21W
Township 1 North, Range 21 West
Sections 13, 14, and 15,
Sections 22 to 28, inclusive, and
Sections 32 to 36, inclusive

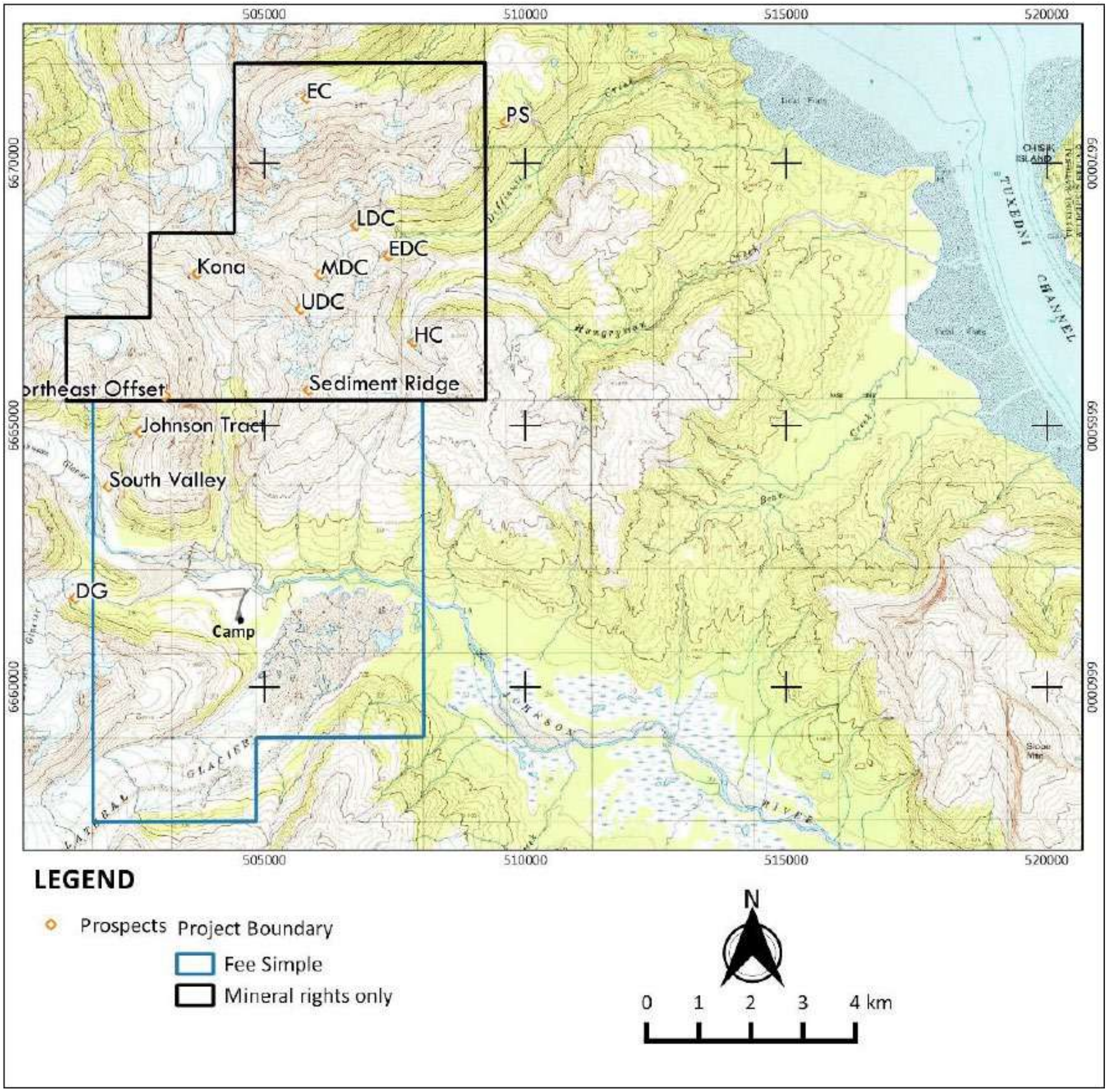


Figure 3-2 Claim Map of the Johnson Tract Project

3.2 Land Status History

The Johnson Tract is owned by CIRI and is situated within the broader Cook Inlet region. CIRI's traditional lands encompass some of the most developed lands in Alaska. Consequently, the mechanism established by the ANCSA in 1971 for Native land selections did not work in their traditional region. Much of the land in the area was occupied by private ownership, municipalities, and boroughs, or had been previously selected by the State of Alaska, and what remained were mostly mountaintops and glaciers. Seeking fair treatment, CIRI worked through the courts to remedy the lack of available selections of "customary and traditional lands". A long negotiation process followed between the United States Department of Interior, the State of Alaska, and CIRI, culminating in the Cook Inlet Land Exchange, the largest land exchange agreement in American history. The Terms and Conditions for Land Consolidation and Management in the Cook Inlet Area (the Agreement) were enacted into federal law in January of 1976 (PL 94-204) and approved by the Alaska Legislature in March 1976.

Among other things, the Agreement facilitated the creation of LCNPP and conveyance to CIRI of a well-known mineral prospect within the Park's boundaries. This prospect, known as Johnson Tract, was divided into two blocks of roughly equal size: The North Tract and the South Tract. CIRI received subsurface title to the North Tract, and both surface and subsurface title to the South Tract. In the North Tract, it was agreed that surface use for the purpose of exploration and extraction would occur pursuant to a surface use plan approved by the Department of Interior. The South Tract agreement was subject to a covenant that the surface estate could only be used for purposes incident to mining and mineral extraction. The North and South Tracts were conveyed to CIRI by the Bureau of Land Management on May 14, 1979, and March 10, 1982, respectively.

Enabled by the Cook Inlet Land Exchange, Congress formally established Lake Clark National Park and Preserve in 1980 pursuant to Section 201(7) of ANILCA, significantly expanding the land base as compared to the original park proposal. The expansion was made possible because CIRI and its villages relinquished selections previously made under ANCSA for significantly less acreage in sometimes less desirable areas. The creation of the LCNPP specifically excluded privately owned lands such as those held by CIRI. The surface lands of the North Tract are to be administered by the LCNPP in a manner consistent with CIRI's ownership of the subsurface estate.

Details on the conveyance and restrictive covenants can be found in Sections I.D.(2) and (3) of the December 10, 1975, Terms and Conditions for Land Consolidation and Management in the Cook Inlet Area agreed between CIRI and the Federal Government and ratified by Congress on January 2, 1976 by enactment of Section 12 of PL 94-204.

Revenues CIRI receives from any commercial mineral production in the Johnson Tract will be subject to the 7(i) and 7(j) provisions of ANCSA which provides for the sharing of such revenues among other Alaska regional and village corporations.

3.3 Johnson Tract Lease Agreement

Contango Ore, through its wholly owned US subsidiary J T Mining, Inc. (J T Mining), holds a Lease Agreement with CIRI with an effective date of May 17, 2019.

The Lease Agreement details the leasing terms to the Project area totaling 8,513-hectares (21,036 acres), as defined in Section 4.1. The Lease Agreement is for an initial 10-year term (Initial Term), followed by a five-year term (Development Term) to achieve a mine construction decision, and a production term that will continue for so long as operations and commercial production are maintained. Terms of the Lease Agreement include annual lease payments of US$ 75,000 for the first five (5) years, increasing to US$ 150,000 for year six (6) and onward, until production is achieved. A pre-feasibility study or feasibility study of the Project must be completed by the tenth anniversary of the effective date of the Lease Agreement. A commitment of US$10 million in expenditures is required within the Initial

Term, including at least US$ 7.5 million spent within the first six (6) years. Based on representations of Contango Ore's management the commitment of US$10 million in expenditures has been met.

During the Development Term, a commitment of US$ 2 million in expenditures per year is required until a mine construction decision is achieved. Certain accrual and carry-forward provisions for excess expenditures are included in both the Initial Term and Development Term.

Upon completion of a feasibility study and a decision to construct a mine, CIRI has the one time back-in right to participate to a maximum of 25% equity interest in the Project by contributing its pro-rata share of capital expenditures. CIRI will also receive NSR royalties of 2% (pre-Payback) to 3% (post-Payback) on base metals and a gold price adjusted NSR royalty of: 2.5% (<$1,250/oz Au); 3.0% (<$1,500/oz Au); 3.5% (<$2,000/oz Au); or 4% (>$2,000/oz Au).

3.4 Permitting

Permitting requirements for the Project varies between the North Tract and South Tracts given the LCNPP surface rights ownership of the North Tract. The following is a brief discussion of the North and South Tracts with a summary provided in Table 3-2. There is a more fulsome discussion on permitting in Chapter 17.

Certain authorizations from the State of Alaska apply to both the North and South Tracts, including Temporary Water Use Authorizations (TWUA F2022-094 and TWUA F2023-065) that authorizes withdrawal of water to support diamond drilling, and is supported by Fish Habitat Permit FH22-II-0099. Disturbance associated with surface drilling on both the South and North Tracts typically remains below 5 acres, and reclamation is annually approved by a Letter of Intent under APMA #3253.

3.4.1 Permitting – South Tract

Both the mineral and surface estates are owned by CIRI on the South Tract. Access and exploration of the South Tract are authorized in the Lease Agreement between CIRI and J T Mining. The South Tract includes the camp, airstrip and the currently defined Johnson Tract Deposit Mineral Resource. The Company holds various state permits related to the JT camp, kitchen, and associated waste disposal systems, issued by the Alaksa Department of Environmental Conservation (ADEC) and Alaksa Department of Natural Resources (ADNR). The installation of surface hydrology gauging stations in creeks of the South Tract have been approved by three Fish Habitat Permits (FH23-II-0051, -0052 and -0054).

Future construction of a road and new airstrip to support underground exploration activities has been permitted by the US Army Corps of Engineers (USACE) under a Federal Section 404 permit, which authorizes the placement of fill in wetlands. The 404 permit was received on September 10, 2024, and expires on August 31, 2029 (POA-2023-00115). State approvals related to the planned surface construction include a Certificate of Reasonable Assurance and a Reclamation Plan Approval.

3.4.2 Permitting – North Tract

For the North Tract, the subsurface mineral estate is owned by CIRI and the surface estate is public land administered by the Department of Interior National Park Service (LCNPP). As a result, surface land use permits are required from LCNPP for work on the North Tract.

For diamond drilling activities, the Park Service permits access through a Right of Way Certificate of Access (RWCA). An environmental assessment under the National Environmental Policy Act was completed for the Project's RWCA application submitted in September 2020. The Park Service issued a RWCA Permit LACL-21-001 on April 26, 2021 for drilling activities on the North Tract. The RWCA Permit authorizes up to 150 drill pad sites and is valid until October 31, 2028. A reclamation bond of US$ 145,547 has been posted as a condition of the RWCA permit.

The Park Service separately permits certain helicopter-supported exploration activities, including geochemical sampling, geologic mapping, and geophysics programs through a Special Use Permit that is applied for on an annual basis.

3.4.3 Permitting – Easements

Environmental and engineering studies to support the permitting of an eventual road to the coast and port are authorized under the easement deeds, issued January 15, 2025. Compliance with Section 106 of the National Historic Preservation Act (NHPA)for work within the easement boundaries is determined by a companion Programmatic Agreement (PA).

Any work required on LCNPP lands outside of the easements and the Johnson Tracts is authorized annually under a Special Use Permit.

Table 3-2 Johnson Tract Authorizations

Issuing Body	Authorization	Document Number	Date of Issuance	Renewal Date	Note
PROJECT-WIDE (NORTH AND SOUTH TRACTS)					
Cook Inlet Region, Inc. (CIRI)	Exploration Agreement	n/a	01-Jul-23	01-Jul-28	Business arrangement for J T Mining, Inc. to conduct exploration and evaluation of mineral potential and ore resources on CIRI's lands in the Tuxedni (North Block) & Iniskin (South Block) areas
Alaska Department of Natural Resources (ADNR)	Multi-Year Hardrock Exploration & Reclamation	APMA #3253	16-May-23	15-May-28	Letter noting that no APMA approval is needed from ADNR to conduct less than 5 acres of disturbance. APMA number is linked to reclamation reporting requirements and TWUAs
	Temporary Water Use (TWUA)	TWUA F2023-065	29-Jun-23	31-Dec-27	Five water withdrawal draw points to support diamond drilling.
	Temporary Water Use (TWUA)	TWUA F2022-094	21-Sep-22	20-Sep-26	Four water withdrawal draw points to support diamond drilling.

Issuing Body	Authorization	Document Number	Date of Issuance	Renewal Date	Note
Alaska Department of Fish and Game (ADFG)	Fish Habitat	FH22-II-0099	22-Jun-22	31-Dec-26	Approves nine water withdrawal sources authorized under the TUWAs.
NORTH TRACT					
National Park Service (NPS) / Lake Clark National Park and Preserve (LCNPP)	Right-of-Way Certificate of Access (RWCA)	LACL-21-001	22-Apr-21	31-Oct-28	Approves surface exploration activities on the North Tract. An Environmental Assessment was conducted prior to permit issuance with a Finding of No Significant Impact (FONSI)
	Performance Bond (RWCA)	Bond Number 800120175	17-Jun-21	-	Principal amount $145,547 USD. Held and bonded unto National Parks Service, Alaska Region.
	Special Use Permit (SUP)	2024-LACL-SUP-004	01-Jul-24	31-Oct-24	For activities outside of what is approved in the RWCA.
SOUTH TRACT					
Alaska Department of Fish and Game (ADFG)	Fish Habitat	FH23-II-0051	01-Jun-23	30-Sep-27	Approved installation of two gauging stations in Johnson River
	Fish Habitat	FH23-II-0052	05-Jun-23	30-Sep-27	Approved installation of one gauging stations in Kona Creek
	Fish Habitat	FH23-II-0054	06-Jun-23	30-Sep-27	Approved installation of one gauging stations in Ore Creek
Alaska Department of Conservation (ADEC)	Section 401 Certification of Reasonable Assurance	POA-2023-00115	20-Oct-23	n/a	Provides the DEC/State of Alaska with the authority to review a federal application that might result in a discharge into WOTUS and ensure this discharge will comply with State water quality standards.
	Public Water System	PWSID#249261	26-Jul-23	n/a	Approval to operate a public water system at Johnson Tract Camp.
	Domestic Wastewater	PA-29073	23-Jan-24	n/a	Approval for the operation of the Johnson Camp septic field.
	Solid Waste Permit	SW3CAMPA091-28	24-Aug-23	n/a	Authorizes the Class III Camp Landfill at Johnson Tract Camp for disposal of septage and ash.
Alaska Department of Natural Resources (ADNR)	Reclamation Plan Approval (RPA)	A20243253RPA	26-Apr-24	26-Apr-29	Approves reclamation and bonding associated with surface infrastructure to support an underground exploration drift (as defined by 404 permit). Bond for $726,000 USD required prior to construction activities.
	State of Alaska Water Rights – Permit and Certificate of Appropriation	LAS 34436	10-Feb-23	n/a	Water rights for Johnson Camp potable water; associated with land title

Issuing Body	Authorization	Document Number	Date of Issuance	Renewal Date	Note
Unites States Army Corps of Engineers (USACE)	404 Permit	POA-2023-00115	10-Sep-24	31-Aug-29	Authorizes associated wetland disturbance due to construction of road to portal and airstrip expansion on fee simple lands
LAKE CLARK NATIONAL PARK AND PRESERVE					
U.S Department of Interior (DOI)	Decision Record; Lake Clark National Park and Preserve Johnson Tract Transportation and Port Easements	na	15-Jan-25	na	Decision Record addressing the conveyance of the easements.
	Deed of Transportation Easement for the Johnson Tract, Alaska	na	15-Jan-25	na	Defines the preliminary geographic boundary of the port easement. Authorizes activities under the planning phase.
	Deed of Port Easement for the Johnson Tract, Alaska	na	15-Jan-25	na	Defines the preliminary geographic boundary of the port easement. Authorizes activities under the planning phase.

3.5 Project Land Use Requirements and Plans

Exploration and mining are consistent with known land use requirements and plans. In the North Tract, surface use for the purpose of exploration and extraction would occur pursuant to a surface use plan approved by the Department of Interior National Park Service. The South Tract is subject to a covenant that the surface estate could only be used for purposes incident to mining and mineral extraction.

3.6 Port and Transportation Easements

As summarized in Section 3.2, the Cook Inlet Land Exchange was ratified and incorporated into federal law in 1976. As part of the 1976 Act, CIRI relinquished ANCSA land selections around Lake Clark and agreed to support the creation of the Lake Clark National Park and Preserve, in exchange for ownership of the Johnson Tract. By ratifying and incorporating the Cook Inlet Land Exchange into federal law, Congress required that the Secretary of the Interior “shall also convey” a transportation easement and a port easement across what would become the LCNPP. The easements are to allow for the transportation and shipping of minerals extracted from the Johnson Tract. The 1976 Act requires that the Secretary and CIRI mutually agree upon the location of these two easements (as per Section 12 of PL 94-204):

> “The Secretary shall also convey to CIRI, an easement for a port which shall reasonably provide for receiving, shipping, storage and incidental handling, and incidental facilities thereto, of the minerals extracted from the lands conveyed under subparagraphs I.D.(2) and I.D.(3). The Secretary shall also convey to CIRI a transportation easement to provide for transportation by

> road, rail or pipeline, of the minerals from the above-described lands to the port easement. The Secretary and CIRI shall mutually agree upon the location of these two easements."

On January 15, 2025, the Department of the Interior completed the conveyance of two easements (the Road and Port Easements) to CIRI as directed by the Cook Inlet Land Exchange Act (Figure 3-3). The conveyance of the easements was not subject to the National Environmental Policy Act (NEPA), as specified by Section 910 of the Alaska National Interest Lands Conservation Act (ANILCA).

Since the final locations for a road and a port site have not been selected, the easement deeds have been structured with three distinct phases: planning and design; construction; and operations and maintenance. Under this structure, the size of the easements will be reduced during each phase. The deeds for the Road and Port Easements also authorize engineering and environmental studies during the planning phase to support the eventual permitting and construction of a road from the South Tract to a port on the coast.

A Programmatic Agreement (PA) will be established under Section 106 of the NHPA with the goal of streamlining Section 106 compliance throughout all phases as described in the deeds. The PA will provide a process, including consultation, for avoiding, minimizing, and if necessary, mitigating any adverse effects to historic properties. The final PA was finalized by LCNPP and CIRI in April 2025.

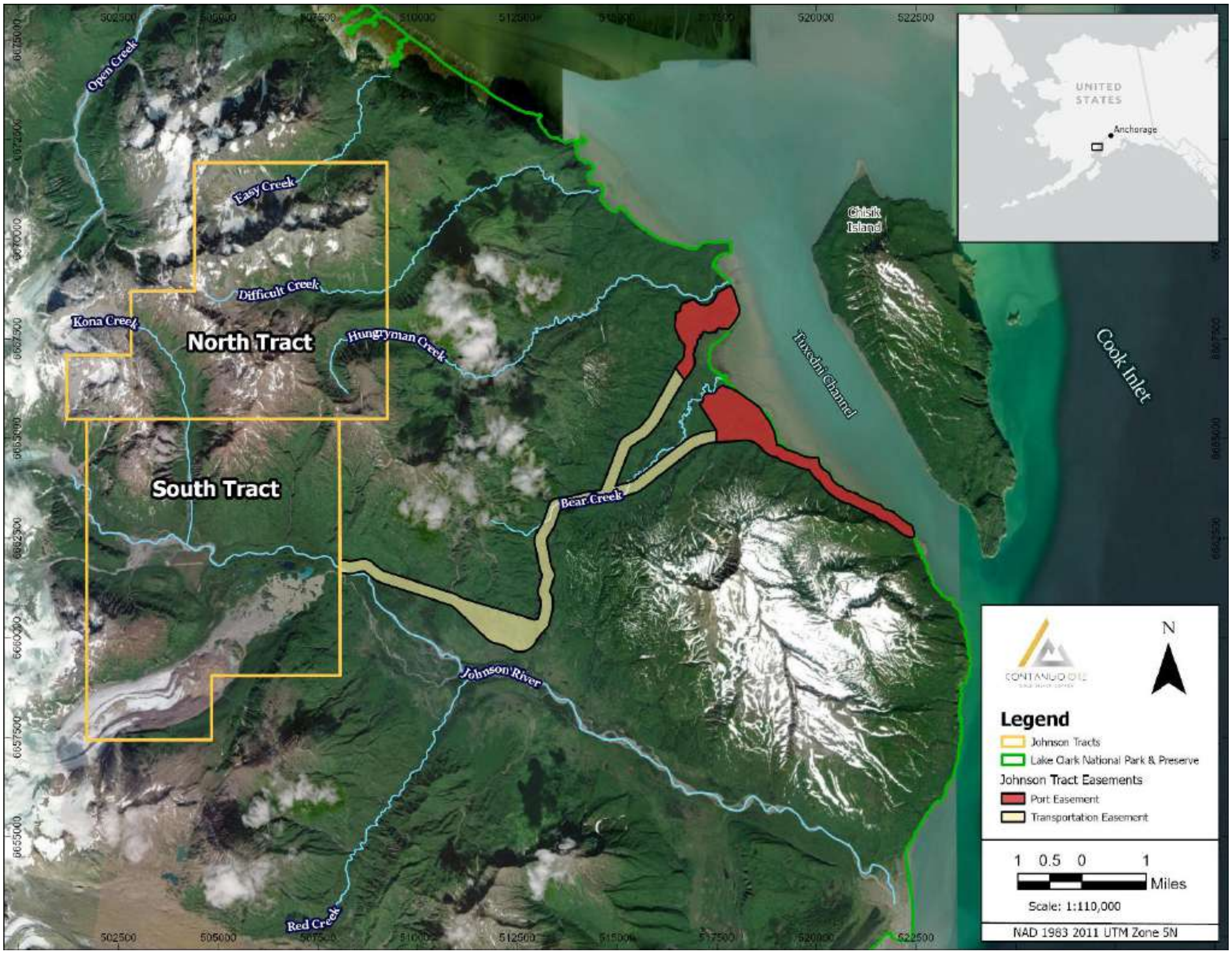


Figure 3-3 Johnson Tract Easements

3.7 Natural Hazards

Johnson Tract is located within an area prone to subduction zone related seismic activity. Engineering of any future mine facilities will require seismic analysis. The Project also lies within the Aleutian volcanic arc, which extends 2,500 km (1,553 mi) from near Anchorage to the western Aleutian Islands. The 3,053m (10,016 ft.) peak of the Mount Iliamna stratovolcano is located 12 km (8 mi) south-southwest of the Johnson Tract Deposit.

Except for summit fumarolic activity, it is uncertain and perhaps unlikely that Iliamna Volcano has been historically active (Miller, 1998). Although no historic (i.e., within the last 200 years) eruptions can be confirmed, recent studies have identified coastal lahars containing juvenile clasts that originated from Iliamna Volcano ~300 years ago and are overlain by 250-year-old trees. These deposits record the most recent eruptive activity from the volcano (Miller, 1998).

3.8 Environmental Liabilities

The Johnson Tract Project is a development stage exploration project and based on the Author's observation of the site, there are no known environmental liabilities of any significance associated with the Project.

A moderate amount of environmental work has been completed on the Project. Initial environmental baseline study work was completed as part of the access road and port site evaluation by Westmin (1993) and baseline geochemistry of the Johnson River was performed by the United States Geological Survey (Brabets and Riehle, 2003). J T Mining. Continued to build on the Project's environmental dataset by initiating environmental baseline monitoring in 2020. Since then, various studies have been completed and/or are ongoing including work on baseline meteorology, acid base accounting, hydrogeology, water quality, surface hydrology, wetland mapping, aquatic life, nesting raptors, and cultural resources. The Author is not aware of any federally listed endangered species present on the property or other potential environmental issues or concerns.

Four environmental evaluations have been completed for recent project activities. While they don't directly address on-site environmental concerns, no existing liabilities are noted. The reports include: 1) the 2020 environmental assessment (EA) by the National Parks Service for exploration on the North Tract; 2) the 2023 evaluation by Stantec for planned activities on the South Tract; 3) the 2024 EA by the U.S. Army Corps of Engineers for the 404 permit on the South Tract; and 4) the 2025 resource analysis by the National Parks Service for the transportation and port easements.

Existing facilities include the Johnson Camp, which was established in the early 1980s. The existing facilities include a small camp, a gravel airstrip measuring 800 m long (2,625 ft.) by 30 m wide (98 ft.), and a gravel road linking the airstrip to the camp. The Johnson Camp was rehabilitated by J T Mining. When they acquired the Project in 2019. The Johnson facilities are located entirely in uplands. Two fuel depots service project activities, with a total capacity of 8,570 gallons. Fuel is stored in multiple tanks, with the largest capacity being 1,000-gallons. All fuel is within secondary containment and no major spills have been documented.

Minor surface disturbance associated with surface exploration has been recorded on the North and South Tracts and includes drill casing, timber pads for drilling and helicopter access, and sumps. Reclamation occurs in conjunction with exploration activities and total disturbance is limited to under 5 acres.

3.9 Land Title Risks and Designation

A legal title report titled "Title Report on CIRI Lands in T1N R12W and T1S R21W, SM" was completed by Stoel Rives LLP for J T Mining on October 27, 2021 (Monroe, 2021). No land title risks or designations that would impede the ability to develop the Johnson Tract Project were identified in the report.

3.10 Social Or Community Risks

The Project area is remote and uninhabited. The closest community is the village of Ninilchik, population 845, located approximately 60 km (37 mi) due east on the eastern side of Cook Inlet. The native village of Tyonek is 145 km (90 mi) to the northeast and located on the west side of Cook Inlet. Because of the Project's remote location few people visit the Project area. As an inholding within LCNPP, the Project may attract public interest. Comprised of 4 million acres, LCNPP is one of the largest National Parks in the United States and public use is limited due to its remoteness and relatively inaccessible location. Brown bear viewing along the coastline near Silver Salmon Creek is the main public use closest to the Project and is located approximately 20 km (12 mi) to the southeast.

In the Author's opinion, there are no significant social impediments to exploration and development of the Project. Should a mine be developed on the Project, royalty and other Project revenues collected by CIRI would be to the benefit of CIRI and its shareholders, which includes the Alaska Native peoples living within the CIRI region. Resource revenue sharing also occurs amongst the 12 Alaska-based regional corporations pursuant to the 7(i) and 7(j) provisions of ANCSA.

4 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Accessibility

The Johnson Tract Project (the Project) is located 200 km (124 mi) southwest of Anchorage, 15 km (9 mi) inland from Cook Inlet and tidewater. A gravel airstrip 800 m long (2,625 ft.) and 30 m wide (98 ft.) allows for fixed wing aircraft to access the Project. Snow-free access is generally open from mid-June through mid-October. Helicopters are used to access the Johnson Tract Deposit (the Deposit) and surrounding prospects. A gravel road links the airstrip to the Johnson Camp (Figure 4-1.

4.2 Climate

The Project area is located within a Continental Subarctic Climate influenced by both maritime and continental climates. The Alaska Range mountains to the north shield the region from the extreme temperatures of the Alaskan interior. Mean monthly temperatures for the Project area are below freezing for six to eight months of the year with high/low temperatures in Ninilchik averaging 33F/17F from October through April (https://www.ncei.noaa.gov/), with an average frost-free period of only 50-90 days per year. Summers are short and mild with high/low temperatures in Ninilchik averaging 62F/41F from May through September (https://www.ncei.noaa.gov/), with long days and a prevalence of frontal precipitation associated with maritime tropical air within traveling cyclones. The average amount of precipitation for the year is 647.7 mm (25.5 in.), with the most precipitation occurring in August. The average annual snow accumulation is 150 cm (59 in.), with the most snowfall occurring in December (Weatherbase.com) for Lake Cark National Park, Alaska, Feb 19, 2025).

4.3 Local Resources

The majority of resources can be sourced in Anchorage and transported to site via fixed wing aircraft. Large or bulky items can be transported to site by barge from Homer, AK and then transferred to the Johnson Camp by helicopter. Anchorage has a population of approximately 291,247 (2020 Decennial Census, US Census Bureau) and is home to numerous service companies tailored to supporting mining and mineral exploration. Daily flights out of Anchorage International Airport (ANC) connect Anchorage to Seattle, Washington and Vancouver, British Columbia. The closest center of population, Ninilchik (845 population, 2020 Decennial Census, US Census Bureau), is located 60 km (37 mi) due east on the eastern side of Cook Inlet.

4.4 Infrastructure

The Project has a functioning gravel airstrip large enough for mid-sized aircraft such as a Skyvan (1,900 kg payload) or DeHavilland Caribou (3400 kg payload) to access the area. A gravel road links the airstrip to the Johnson Camp. The Camp was first established in the early 1980's and rehabilitated to functioning capacity in the summer of 2019 (Figure 4-2). A 50-kw diesel generator provides electricity to the Camp. Water is sourced from a well. Buildings include a kitchen with mess hall and shower house, an office, five (5) core storage containers, a core cutting shack, a sample preparation lab to reduce core samples to pulps for offsite analytical work, a generator shack and a mechanical shop (Figure 4-2). Tents are erected during the summer field seasons for sleeping quarters for ~50 people, drill core logging and administrative activities. Between the Camp and proposed portal site, lies a wide flat valley which is well suited for surface infrastructure. The Company is authorized to build a 2.6-mile-long portal access road to connect the camp and airstrip to the proposed underground exploration portal (Figure 4-2).

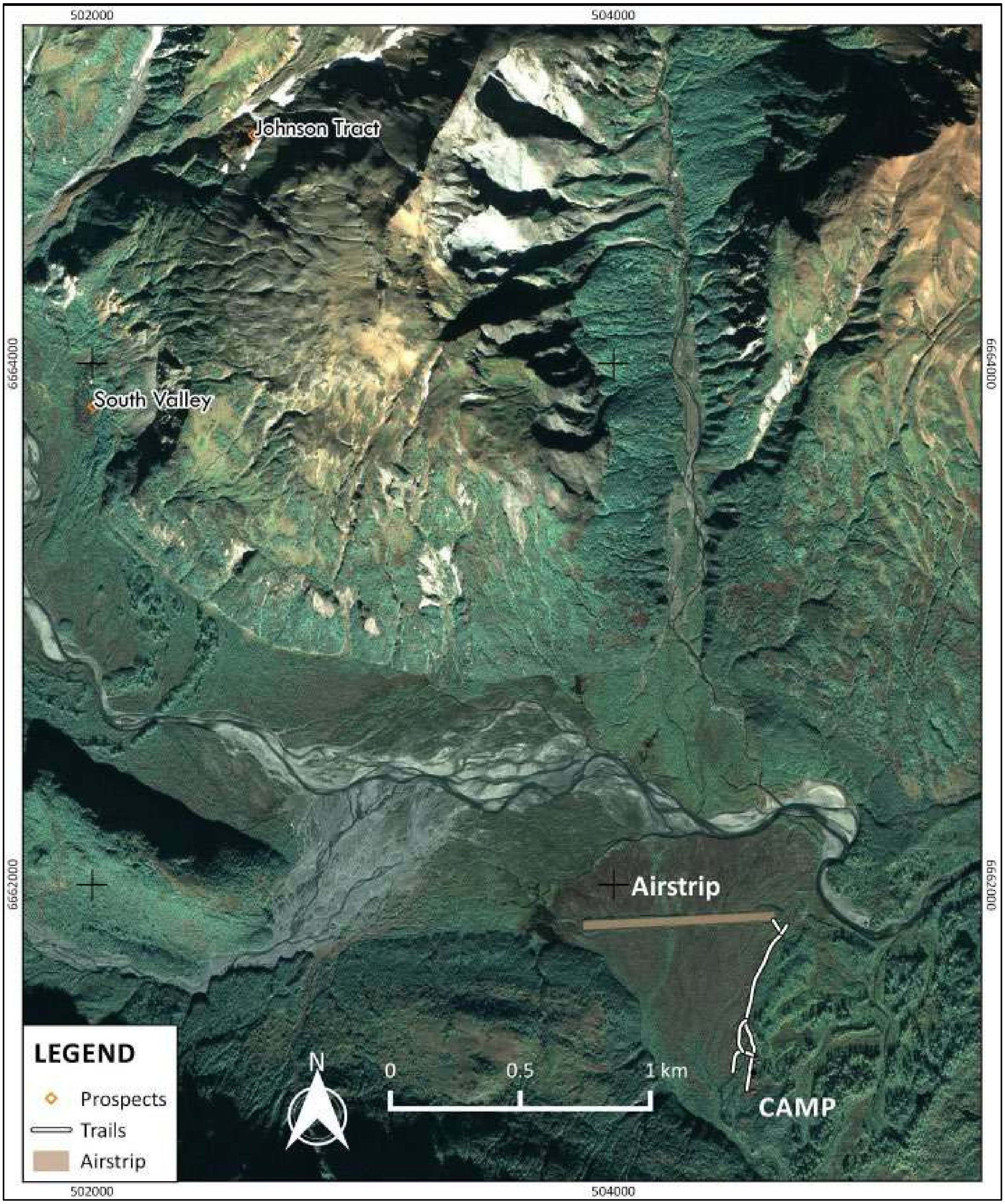


Figure 4-1 Map of Southern Project area with Johnson Camp and the Airstrip

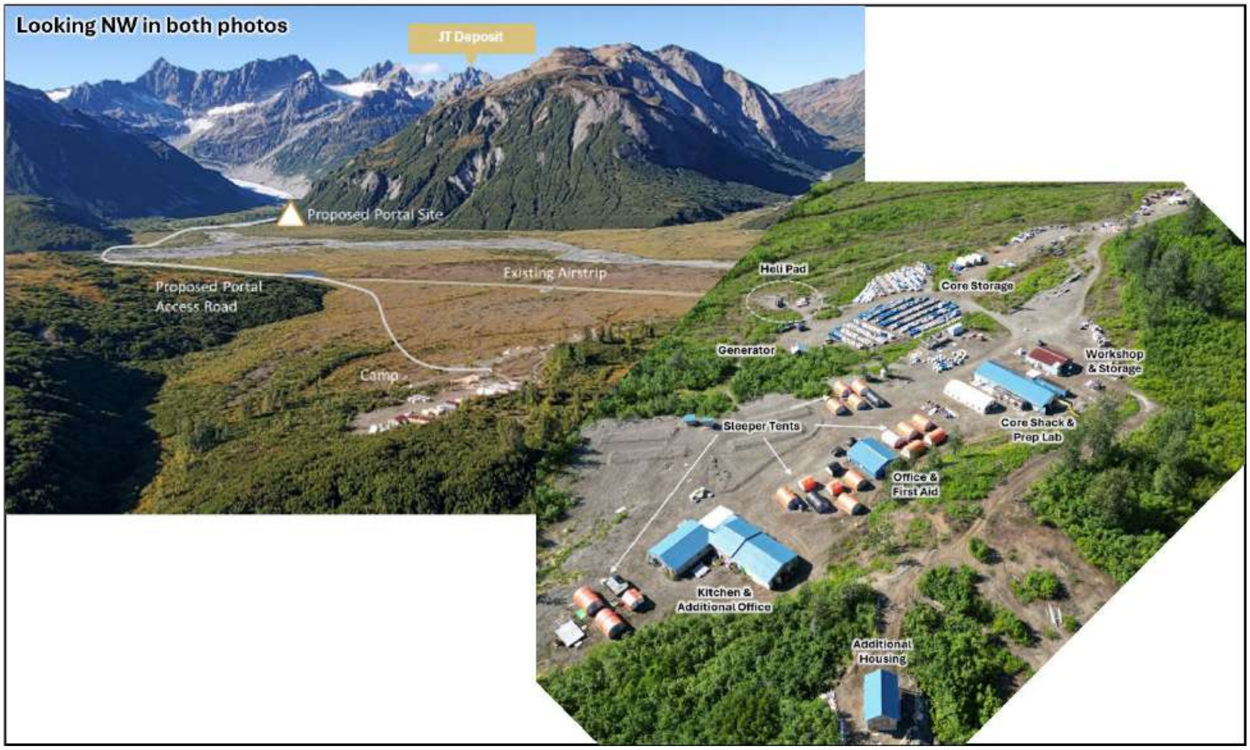


Figure 4-2 Project Overview and Layout of the Johnson Camp

4.5 Physiography

The Project area is within the Chigmit Mountains. Elevations range from 90 m (197 ft.) to 1,200 m (3,937 ft.). Vegetation is separated into three main categories: meadow-like areas; dense shrub thickets; and an open forest shrub complex (Westmin, 1993). Streams flow with annual runoff from the mountains east toward Cook Inlet (Figure 4-3). Portions of two major drainages are located within the Project area: Johnson River and Bear Creek. Areas surrounding the drainages consist of broad valleys with moderate to steep slopes, benches formed above active floodplains, and variably incised secondary drainages formed from the mountain slopes. The ocean tidal range of Cook Inlet has a mean range at Anchorage of nine m (29 ft) and a mean range of six m (20 ft) at Kenai.

The lowlands of the Project area near the inlet are largely covered in forest, ponds, lakes, and peatlands. Evergreen, white and black spruce, birch, aspen and balsam poplar, make up the upland forests. The base of the mountain range contains a zone of western hemlock and Sitka spruce. Above 2,500 ft. (760 m), an alpine tundra environment dominates higher elevations having little to no vegetation. The alpine vegetation is composed primarily of birch, willow and Labrador tea. Wedged between the tree line and the alpine tundra is a shrub zone of mainly alder (Westmin, 1993). The location of most historic exploration activity at Johnson and Difficult Creek is within the alpine tundra zone.

Figure 4-3 View of Bear Creek Valley looking east toward Cook Inlet

5 HISTORY

5.1 Work Prior to Anaconda Minerals (1966-1980)

The first geologic work effort at the Johnson Tract Project (the Project) was a regional mapping program from Detterman and Harstock (1966) of the United States Geological Survey, focused on identifying the local lithologies and structures on the western side of Cook Inlet. From 1974 to 1975, Resource Associates of Alaska (RAA) was contracted by CIRI to prospect the region and evaluate land for selection under the terms of the Alaska Native Claims Settlement Act (ANSCA) and the Cook Inlet Land Exchange. A single float boulder with anomalous zinc sampled in 1974 led to follow-up work in 1975, tracing the source of the boulder 3.2 km (2 mi.) upstream to the Johnson Tract prospect (RAA, 1976). Regional stream sediment sampling during this time also led to the initial discovery of the Difficult Creek (DC) prospect (McClelland, 1982). No further work was completed until Anaconda Minerals Company (Anaconda) entered into a business arrangement with CIRI in 1981 (CIRI, 1997).

5.2 Anaconda Minerals (1981 – 1985)

In 1981, Anaconda and CIRI signed an agreement allowing Anaconda to explore the Johnson Tract Project. Detailed exploration work began immediately with rock and stream sediment sampling to delineate the source of gold and base metal anomalies. A four-person exploration team was assigned to work on the Johnson prospect. Wetherell and Ellis, 1982, report a breccia pipe and stockwork vein target (Cu, Pb, Zn, Ag, Au and Ba) identified at the Project along with an exploration target identified five kilometers to the northeast at Difficult Creek (DC).

Early exploration work advanced the Project toward a maiden drill program in 1982. The discovery of the Johnson Tract Deposit (the Deposit) is accredited to diamond drillhole JM-82-004, which intersected 108.6 m (356.3 ft.) grading 10.39 g/t gold, 7.64% zinc, 0.71% copper, 2.01 % lead and 8.1 g/t silver, including 48 m (157.5 ft.) grading 21.1 g/t gold, 9.9% zinc, 0.88% copper, 2.9% lead and 12.3 g/t silver. Between 1982 and 1984, a total of 9,331 m (30,613 ft.) of drilling were completed in 26 drillholes at the Deposit.

During the field seasons of 1983 and 1984, exploration work was also conducted on the Difficult Creek Prospect. Work included surface sampling, mapping, IP and magnetic geophysical surveys. The results of this work defined several other prospects including Easy Creek, Kona, PS, and Double Glacier.

In 1983, Anaconda discovered an outcropping of metal-rich massive sulfide with values of 22.1 g/t Au and 178 g/t Ag over 1.5 m (4.92 ft.) at the Middle Difficult Creek prospect called the R.A.T showing and drilled 2 drillholes totaling 139 m (456 ft.). In 1984, 7 drillholes were completed at Difficult Creek totaling 1,205 m (3,953 ft.). Drilling was successful at intersecting mineralization at depth along the Difficult Creek RAT breccia vein. Drillhole DC-83-002 intersected 36.6 m (120 ft.) of 3.57 g/t gold, 1.8% zinc, 0.2% copper, 0.4% lead and 15.5 g/t silver. Anaconda also performed a ground EM survey and trenching to try and delineate the mineralization trend (Table 5-1). Despite identifying what they considered to be a controlling structure, they did not successfully intersect mineralization in subsequent holes and did not continue drilling the RAT breccia target.

In 1985, an Aerodat airborne Frequency-domain EM and magnetics survey was flown, and later infilled/extended in 1992, at 250m (820 ft.) line spacing over the entire property. Of note, the apparent resistivity (coaxial EM 4500Hz frequency) data does an excellent job of highlighting conductive zones on the property (Figure 5-1 and Table 5-1). Most of these low resistivity (conductive) anomalies correlate spatially to known alteration and mineralization exposed on surface or intersected in drill core. It should be considered that this survey can only see 50 to 70m (164 to 230 ft.) deep at best and is highly dependent on terrain clearance of the control source, which in this rugged terrain is a consideration.

From 1981 through to 1985, Anaconda was active in the area before ceasing all company operations globally in 1985.

Table 5-1 Summary of Historic Geophysical Surveys at Johnson Tract

Operator	Year	Surveyor	Prospect	Survey Type	Line km	CIRI Reference File
Anaconda	1983	Ertec Airborne Systems Inc.	Johnson Tract	Airborne Magnetics	700 line-km	050.053.209-Johnson Tract, Aeromagnetic, Box 1 of 2; 050.053.209-Operational Report for a Helicopter Aeromagnetic Survey of the Johnson Prospect
			JT, DC	Ground IP	~4 line-km	Ellis, 1983
				Ground Magnetics	250 line-km	050.053.209-Operational Report for a Helicopter Aeromagnetic Survey of the Johnson Prospect
	1984	Aerodat Ltd	JT, DC, Kona	Airborne EM & Magnetics	188 line-km	050.053.208-Report on Combined Helicopter-Borne Magnetic, Electromagnetic & VLF Survey; 050.053.209-Johnson Tract, Preliminary Report on the Helicopter- Borne Electromagnetic and Magnetic Survey of the Johnson River Region; Crebbs 1984
			JT, DG, Kona, PS	Ground Magnetics & Downhole		050.053.209-Johnson Tract, 1984Johnson Prospect, Ground Magnetics and Max- Min; Ellis, 1984
				Ground EM		050.053.209-Operational Report for a Helicopter Aeromagnetic Survey of the Johnson Prospect
HWP	1992	Aerodat Ltd	DG, SV, JT, HC	Airborne EM & Magnetics	480 line-km (300 miles)	050.053.208-1992 Johnson Helicopter Electromagnetic maps, Memos and Data Disks
Westmin	1995	Scott Geophysics	JT, sv	Ground IP	6.65 line-km	050.053.208-Johnson Tract, I.P. and Resistivity Surveys
HighGold Mining (J T Mining, Inc.)	2020	Discovery International Geophysics	MDC, MB, Kona	Ground DCIP	22.2 line-km	Not Applicable
	2021	Discovery International Geophysics	MDC, MB, Kona, EC, JT	Ground DCIP	31.1 line-km	Not Applicable
	2021	Pioneer Exploration Consultants	JT, MDC, Kona, EC	UAV Aeromagnetic	269.9 line-km	Not Applicable
	2022	Pioneer Exploration Consultants	JT, MDC, Kona	UAV Aeromagnetic	511 line-km	Not Applicable
	2022	Kodiak Mapping	South Tract and Easement	Lidar and Imagery		Not Applicable

Operator	Year	Surveyor	Prospect	Survey Type	Line km	CIRI Reference File
	2023	Expert Geophysics	Johnson Tract	Airborne EM (MobileMT) & Magnetics	667 line-km	Not Applicable

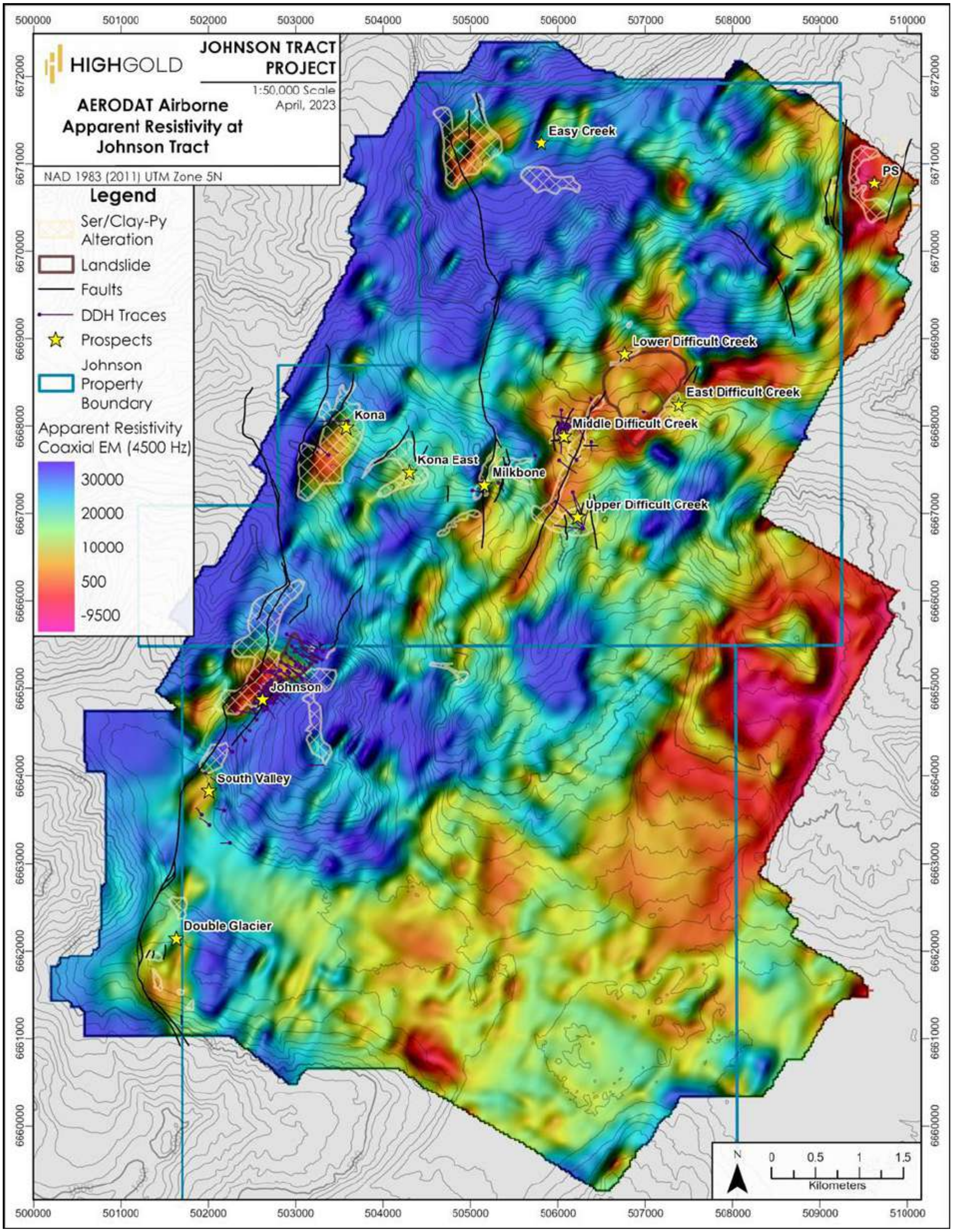


Figure 5-1 *Compilation Map of 1988 & 1992 Aerodat Survey Results – Apparent Resistivity. Note that low resistivity (high conductivity) zones correlate well with known areas of alteration and mineralization*

5.3 Hunt, Ware, and Profett (1985 – 1993)

In 1985, a private developer, Howard B. Keck, leased the Project from CIRI and contracted Hunt, Ware and Proffett (HWP) to evaluate the Deposit and surrounding prospects. Between 1987 and 1992, a total of 11,416 m (37,454 ft.) of drilling in 34 drillholes was completed at the Johnson Tract Deposit (Table 5-2). Exploration work also included detailed geologic and alteration mapping.

Economic and engineering studies modelled the installation of an underground drift and mill onsite to process ore (Hughes, 1988). The studies concluded that the economics were sensitive to ore grade and tonnage and that the definition of additional mineral resources was important. Subsequent drilling in 1990 and 1991 focused on defining the limits of the main orebody (Proffett 1990). The 1992 program focused on exploring for a northeast extension of the Johnson Tract Deposit, thought to be offset by faulting. Mineralization was successfully intersected at the northeast offset that exhibits the same characteristics of the main orebody; however, intersections were deeper, narrower and lower grade in comparison to the main Johnson Tract.

5.4 Westmin Resources (1993 – 1997)

In 1993, Keck obtained CIRI's approval to sublease the Project to Westmin Resources Ltd (Westmin). Westmin acquired the Project for its potential to supply ore to the Premier Mine and Mill facility located approximately 900 nautical miles (1,035 mi.) to the south near Stewart, British Columbia.

Between 1993 and 1995, a total of 5,231 m (17,162 ft.) of drilling in 18 drillholes was completed on the Project (Table 5-2). Westmin carried out extensive 'pre-feasibility' economic and engineering studies that evaluated development of a high-grade mine at Johnson Tract (Westmin, 1994). The mine plan included a 900-meter-long (2,952 ft.) adit driven from the valley floor that would access the lowermost portion of the Deposit. The mining method proposed was a combination of transverse and longitudinal sublevel long hole stoping, and a modified Avoca-style cut and fill. The planed mine rate was 250,000 tonnes per year with all ore direct shipped by barge for milling at the Premier Mill, in British Columbia. Detailed engineering studies were also completed on the proposed 24-km (15 mi.) long mine access road and marine ore terminal located in Tuxedni Channel, Cook Inlet. Westmin completed several unpublished in-house evaluation reports on the economic viability of this approach.

Other work by Westmin included geotechnical, metallurgical, and environmental studies, road and port studies, and ground Induced Polarization (IP) geophysical surveys over select targets.

In March of 1997, the lease agreement between Keck, Westmin and CIRI was formally terminated. The Project was released to CIRI with no overarching rights or royalties associated with the property.

5.5 CIRI (1997 – 2018)

After 1997, no significant exploration field work was completed until 2018. In 2003, the USGS completed a study on the water quality of the Johnson River basin. In 2004, Alaska Earth Sciences (AES) compiled all historic data and created a 3D block model of the Johnson Tract Deposit using Gemcom GEMS™ software.

5.6 HighGold Mining Inc (2018 – 2024)

J T Mining, Inc. (J T Mining), a wholly owned US subsidiary of Constantine Metal Resources Ltd (CMR) entered into a non-binding Memorandum of Understanding (MOU) with CIRI to conduct limited field investigations during the summer field season of 2018. J T Mining entered into a lease agreement with CIRI on May 17, 2019. CMR assigned all of its rights in J T Mining to HighGold Mining Inc (HGM) which was spun-out to shareholders in an Initial Public Offering (IPO) approved July 2019. J T Mining completed successive drill programs on the Project in 2019, 2020, 2021, 2022 and 2023 with 182 drillholes completed totaling 55,566 m (182,303 ft.). Total drilling by all historic operators from 1982 to 2023 is 269 drillholes totaling 82,978 m (272,237 ft.; (Table 5-2). Contango Ore acquired HGM in July 2024 through a Plan of Arrangement and thereby gained control of the J T Mining lease with CIRI to the Johnson Tract Project (https://www.contangoore.com/press-release/contango-completes-acquisition-of-highgold).

Table 5-2 Total Drilling by All Operators

Operator	Year	Prospect	Collar ID	# of Holes	# of Meters (m)
Anaconda	1982-1984	Johnson Tract	JM-82-001 – JM-84-027	26	9,331
Anaconda	1983-1984	Difficult Creek	DC-83-001 – DC-84-009	9	1,344
Keck (HWP)	1987-1992	Johnson Tract	JM-87-028 – JM-92-063	34	11,416
Westmin	1993-1995	Johnson Tract	JM-93-064 – JM-95-081	18	5,321
			Total	**87**	**27,412**
Operator	**Year**	**Prospect**	**Collar ID**	**# of Holes**	**# of Meters (m)**
HighGold	2019	Johnson Tract	JT19-082 - JT19-090	9	2,247
HighGold	2020	Johnson Tract	JT19-090 EXT, JT20-091 to JT19-122 (incl. JT20-105B, 111B, 113B and 118B)	37	16,422
HighGold	2021	Johnson Tract	JT21-123 to JT21-147 (incl. JT21-128A and JT21-131B)	27	9,920
HighGold	2021	Difficult Creek	DC21-010 to DC21-026	17	5,293
HighGold	2021	Kona	KN21-001 and KN21-002	2	995
HighGold	2022	Johnson Tract	JT22-148/A/B/C to JT22-152	7	2,716
HighGold	2022	Difficult Creek	DC-027 to 068 (incl. DC22-041b)	43	6,056
HighGold	2022	Milkbone	MB22-001 to MB22-006	6	1,059
HighGold	2022	Kona	KN22-003	1	515
HighGold	2023	Johnson Tract - EXPL	JT23-153 and JT23-154	2	785
HighGold	2023	Johnson Tract - ENG	GT23-001 to GT23-006	6	4,089
HighGold	2023	Difficult Creek	DC23-069 to DC23-088	20	4,089
HighGold	2023	South Valley	JT23-155 and JT23-156	2	589
HighGold	2023	Double Clacier	DG23-001 to DG23-003	3	791
			Total	**182**	**55,566**
All	**1982-2023**	**All**	**Grand Total**	**269**	**82,978**

5.6.1 2018 Exploration Program

Following the completion of a Non-Binding MOU with CIRI in June 2018, J T Mining carried out limited exploration activities focused on validating historic results, digitizing historic data, familiarizing the Company with the Project area and geology, and making camp upgrades. A total of 354 re-assay samples were collected from nine historic drillholes to validate historic assay results.

5.6.2 2019 Exploration Program

J T Mining signed a definitive Mineral Lease Agreement with CIRI in May of 2019 which initiated a dedicated exploration effort. Exploration work included infill sampling of historic drill core, geological mapping, and surface rock and soil sampling. J T Mining geologists familiarized themselves with surface mapping, the various prospects, relogged and resampled historic drill core. A total of 201 surface rock samples, 17 silt and 239 soil samples were collected from the property in 2019 (Figure 5-2 and Figure 5-3). Of the rock samples, 23 were analysed for whole rock geochemistry. A total of 215 infill or re-assay samples were collected from eleven historic drillholes. Dr. John Proffett, who worked at the Project from 1985 to 1993, spent time with J T Mining geologists to educate them on the property geology. Bill Ellis, who was with Anaconda Mining and operated the Project from its inception until 1984, also spent time in the field with J T Mining geologists to pass on knowledge.

From August 24th to September 30th of 2019, J T Mining completed 9 drillholes totaling 2,247 m (7,370 ft.; Table 5-2). Seven holes were designed to infill the Deposit with 2 holes twinning historic holes to advance the known mineralization to a compliant NI 43-101 mineral resource. The program was successful in demonstrating the large width and high-grade continuity of the Deposit and expanded high-grade portions of the Deposit. One hole discovered distinctive mineralization in the footwall to the Deposit which extended the known mineralized system to depth (Footwall Copper Zone or FWCZ).

Since HighGold was a Canadian company, the first mineral resource estimate for the Johnson Tract Deposit was prepared under the guidelines and reporting standards of NI 43-101. It was completed based on both the 2019 and historic drill data. Significant assay highlights from 2019 drilling are shown in Figure 5-4 and Table 5-3 located at the end of this Chapter.

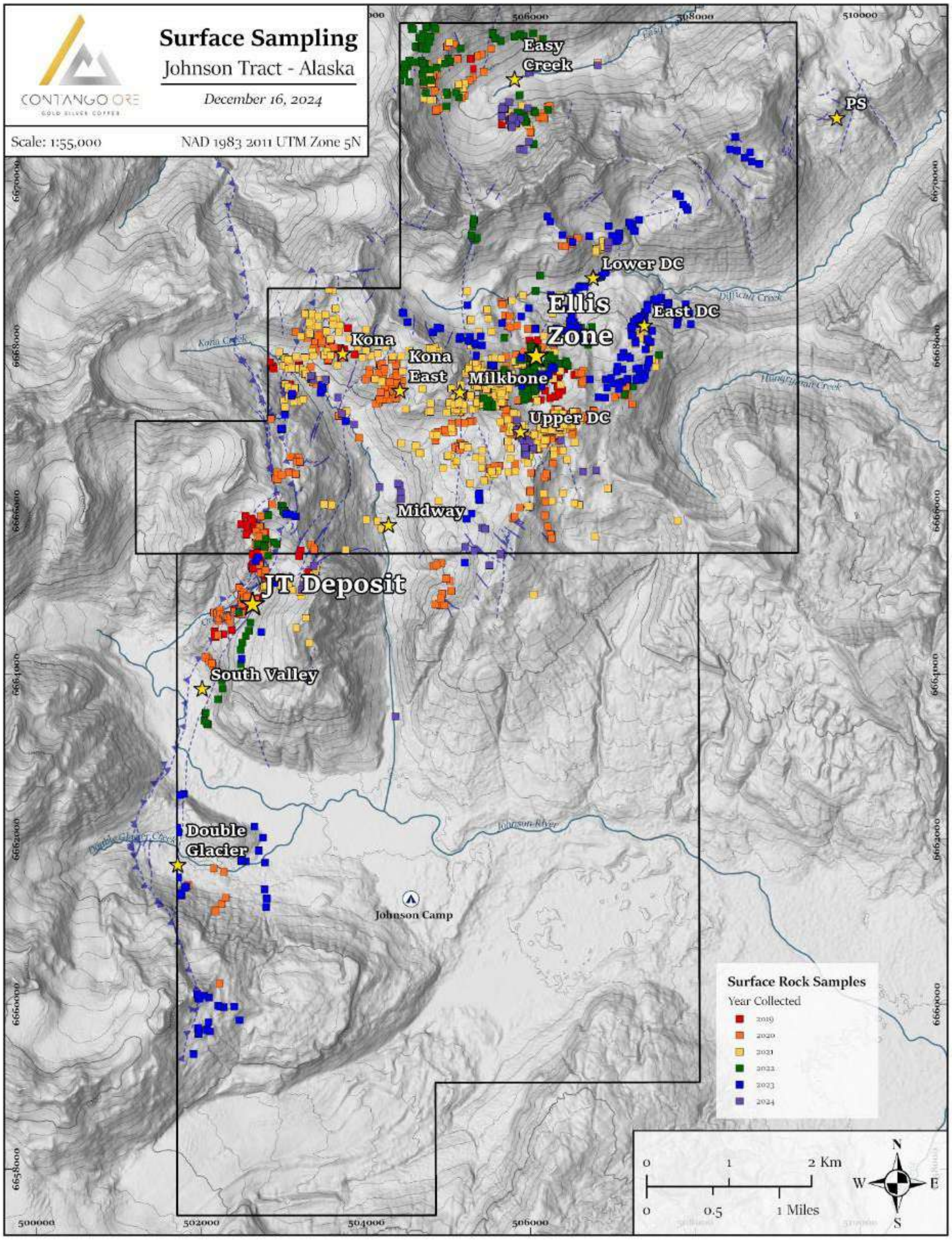


Figure 5-2 Map showing surface rock sample location by year from 2019 to 2024

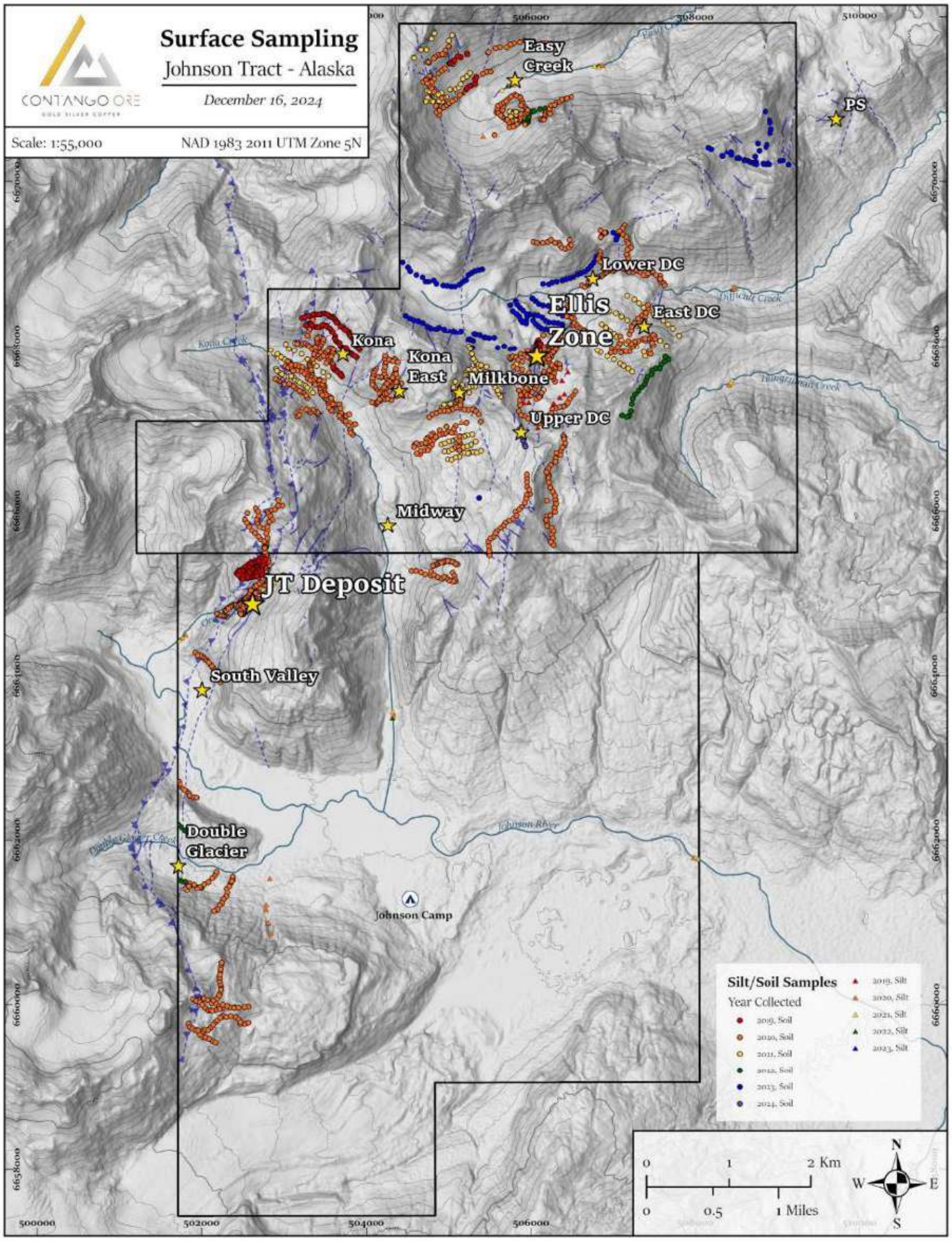


Figure 5-3 Map showing stream sediment and soil sample locations by year from 2019 to 2024

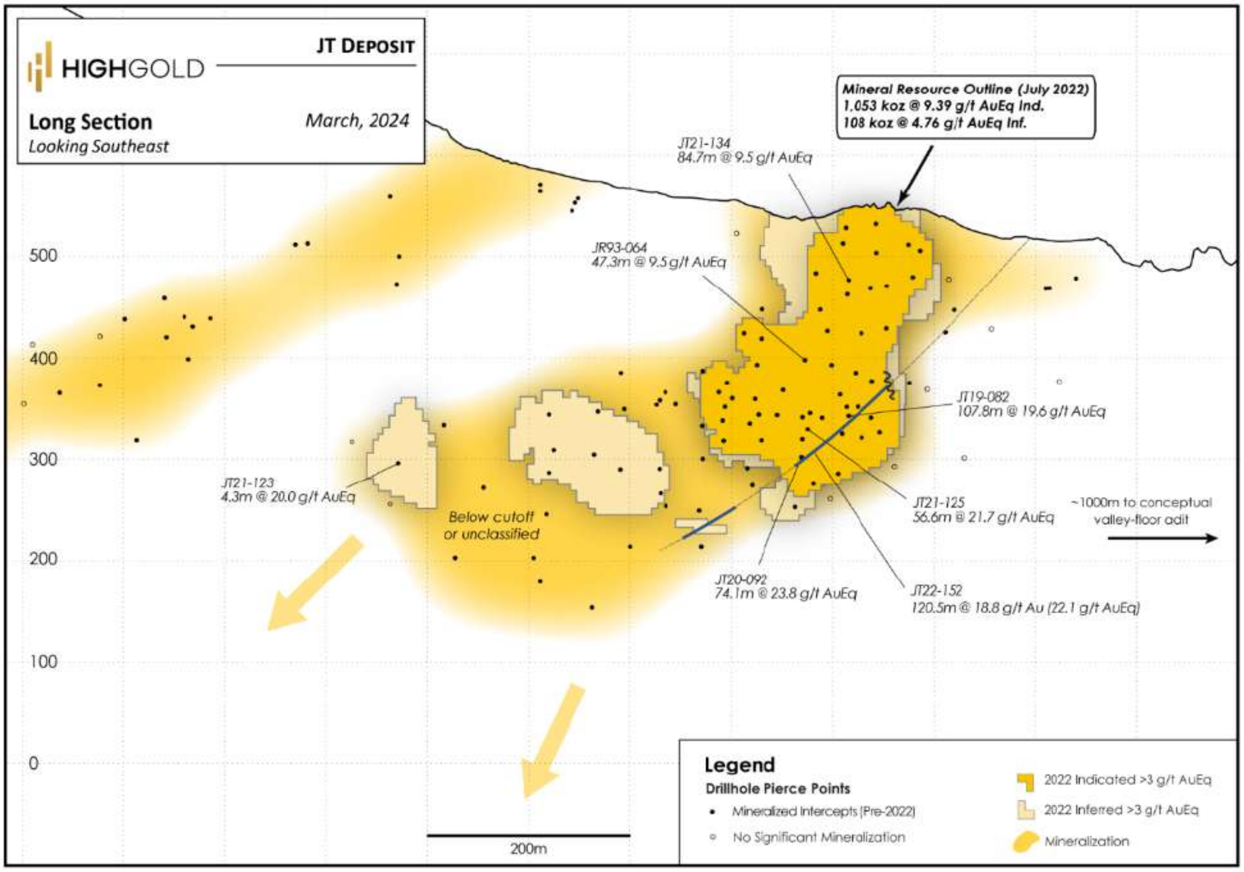


Figure 5-4 Long section of the Johnson Tract Deposit looking southeast. Significant intercepts in callouts

5.6.3 2020 Exploration Program

5.6.3.1 Surface Exploration

In 2020, exploration work continued with geological mapping, surface rock chip and grab sampling, historic relogging and sampling. Geologists focused on the Johnson Tract Deposit and the DC area to confirm historic mapping. John Proffett also continued mapping the Deposit north toward the Kona Creek prospect (Kona).

A total of 617 surface rock samples, 25 silt and 1,170 soil samples were collected from the Project area (Figure 5-2 and Figure 5-3). Of the rock samples, 75 were analysed for whole rock geochemistry. A total of 91 infill samples were taken from six historic drillholes.

A "New Vein Field" was discovered at Upper DC over a 500m x 1000m (1,640 ft. x 3,280 ft.) area. This new Ag-Au rich vein field contains multiple sets of epithermal crustiform quartz veins, vein swarms, and siliceous breccias. Multiple samples returned more than 100 g/t Ag (ranging from 30 g/t to 1,800 g/t). Although the Upper DC showing was known by previous operators, it had not been extensively sampled until 2021 and the scale and potential grade of the vein system was not well understood.

5.6.3.2 Geophysics & Remote Sensing

A 22.2 line-km (14 line-mi) ground-based direct-coupled induced polarization (DCIP) geophysical survey was completed at the DC and Kona prospects (Figure 5-5 and Table 5-1). Results were promising and additional lines were added in 2021. A high-resolution photogrammetry program began in 2020 and continued into 2021. See Section 5.6.4 2021 Exploration Program for more details.

5.6.3.3 Drilling

From July 4th through to October 27th, J T Mining completed 37 drillholes totalling 16,421 m (53,875 ft.), focused on expanding the Deposit to the northeast and testing for Dacite Fault offset targets (Table 5-2). The program successfully demonstrated the impressive width and high-grade continuity of the Johnson Tract Deposit. Continued definition of the footwall to the Deposit was successful in extending the mineralization at depth. Step-out drilling expanded the known mineralization along strike to the northeast.

Drilling northeast of the Deposit intersected zinc-rich mineralization. Significant assay highlights from 2020 drilling are shown in Figure 5-4 and Table 5-3 located at the end of this Chapter.

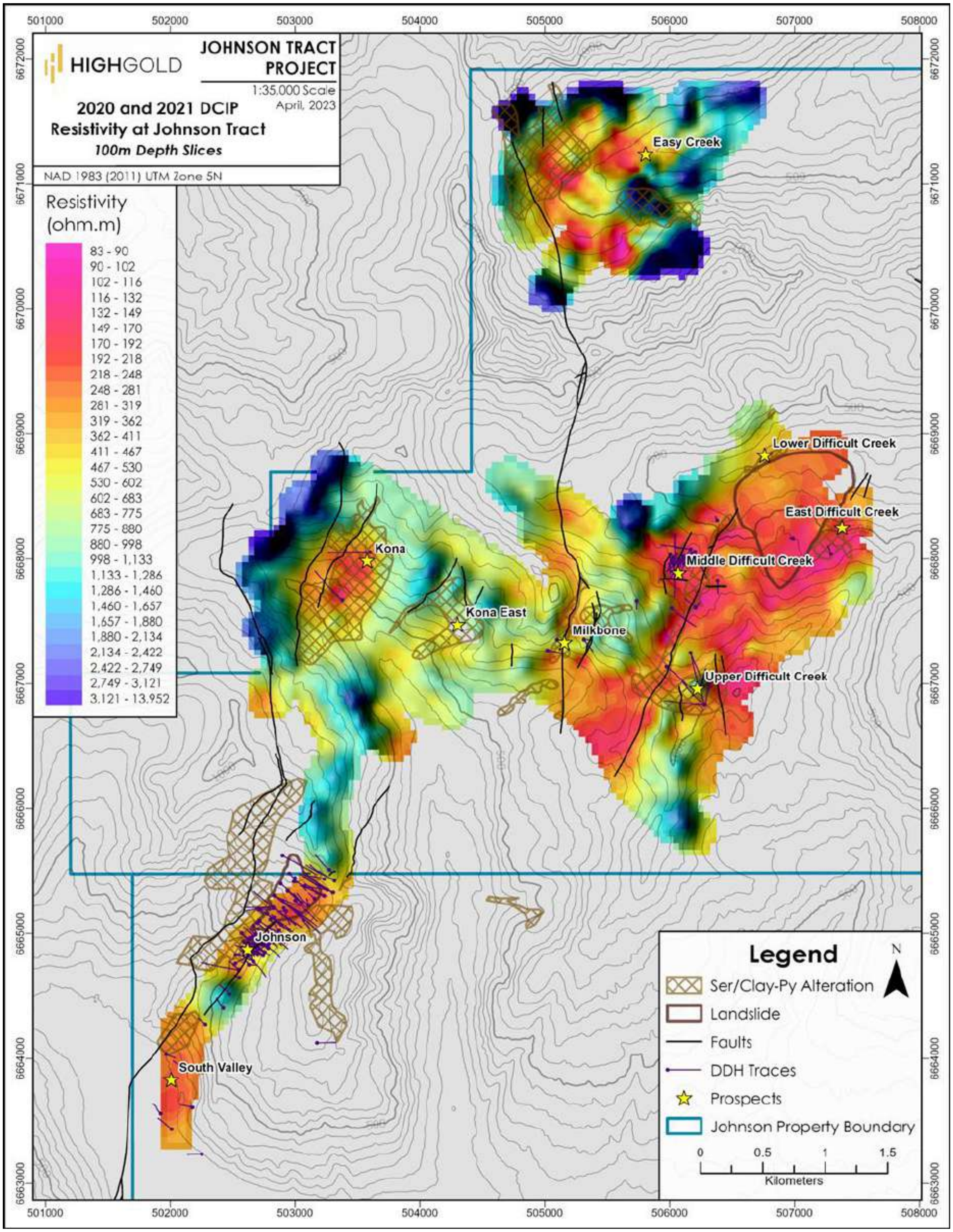


Figure 5-5 *Compilation Map of 2020 and 2021 DCIP Survey Results – 100m Depth Resistivity; the data highlight zones of alteration, similar to but in greater detail than the historic airborne apparent resistivity data. The DC area in particular shows a large area of conductivity*

5.6.4 2021 Exploration Program

5.6.4.1 Surface Exploration

The 2021 surface exploration program assessed the potential for new zones of high-grade mineralization across the Project as well expansion of the Johnson Tract Deposit. Geologists spent time at all prospects to assess priorities, in particular mapping at the DC, Milkbone, and Kona prospects in support of drillhole targeting. John Proffett continued mapping and prospecting north of the Johnson Tract Deposit area toward Kona. Geological mapping, rock, and soil geochemical sampling focused primarily on underexplored prospects including Milkbone, around DC, Easy Creek, and Kona.

A total of 776 rock samples, 492 silt samples, and 251 soil samples were collected (Figure 5-2 and Figure 5-3). An area between the Milkbone prospect and the East DC prospect, including what is known as the Central Fault system, emerged as a priority target area with strong supporting surface geochemistry, including soils up to 8.3 g/t Au and rock samples up to 184 g/t Au. A total of 185 infill drill core samples were taken from six drillholes throughout the Johnson Tract Deposit area.

The Milkbone fault is associated with gold mineralization at the Easy Creek prospect, located 6 km north of DC, where a large (1.5 x 2 km) and strong IP chargeability anomaly coincident with anomalous soil geochemistry, rock samples up to 29 g/t Au, large-scale hydrothermal alteration and a circular magnetic anomaly associated with an intrusive biotite quartz diorite plug. The Kona prospect has a similar geophysical signature to Easy Creek; however, it is believed to be located lower in the stratigraphic section than DC and the Johnson Tract Deposit and may represent a portion of the deeper roots of a large-scale Johnson Tract style mineralized system.

5.6.4.2 Geophysics & Remote Sensing

The Company completed 31.1 line-kms (19 line-mi) of a ground-based DCIP geophysical survey as infill and expansion to the 2020 survey, a 267 line-km (166 line-mi) detailed airborne magnetic Drone Mag survey across the entire Project area, in addition to a high-resolution drone-photogrammetry survey (Figure 5-5 and Table 5-1).

After a failed attempt by Geotech Ltd to collect airborne VTEM data over 12 days in 2021, Pioneer Exploration Consultants Ltd. (Pioneer) completed 267 line-km of airborne magnetic survey over two grids using a Matrice M600 Pro UAV and a Gem Systems Canada GSMP-35U potassium magnetometer sensor. Data was collected at 25 m (82 ft.) line spacing with 250 m (820 ft.) spaced tie lines (Figure 5-6). The nominal magnetic sensor altitude above ground level was set to 30 m (98 ft.). Final deliverables included Total Magnetic Intensity, First Vertical Derivative, and 3D Analytic Signal. Final data were also reviewed by geophysical consultants Campbell & Walker Geophysics Ltd of Edinburgh, Scotland, where inversions of processed pole-pole data were created (Figure 5-7 and Figure 5-8).

A 31.1 line-km ground DCIP survey was carried out over the Johnson Tract Deposit, Kona, DC, Milkbone and EC Prospects by Discovery International Geophysics (Discovery) during the 2020 and 2021 field seasons. This survey used Discovery's MRI-32 IP/Resistivity method for 2D IP/Resistivity data collection, which is designed to collect deeper data and be more sensitive than conventional IP. Pole-pole and pole-dipole arrays were deployed to capture data with a 50-meter injection interval and a 100-meter dipole interval. For the survey, DIAS32 single-channel receivers were connected in a mesh network with a single DIAS GS5000 25kW, 5kV transmitter providing the current input. Inversions of processed pole-pole data from the survey were provided by Campbell & Walker Geophysics Ltd of Edinburgh, Scotland. These data were reprocessed over the 2022-2023 winter and various new visualization products in 2D, and 3D were created (Figure 5-5). The results show compelling resistivity and chargeability at all three target areas with the DC area in particular showing high conductivity along strongly altered structures and areas of known alteration and mineralization.

In 2020, J T Mining purchased a Delair fixed-wing drone Model UX11 UAV for the purpose of collecting photogrammetry data across the Property for imagery and elevation data. Eighty-seven (87) flights were flown during the summer field seasons in 2020 and 2021. Ten (10) ground control points (GCPs), distributed across the property, were used for better accuracy. Both GNSS data and drone images were uploaded into Delair After Flight for PPK processing (post-processed kinematic). ASCII Rinex data were downloaded for each flight from the nearest CORS (Continuously Operating Reference Stations) base station map provided by NOAA/National Geodetic Survey and used for processing and correction. Pix4Dmatic software was used to create DSMs and orthomosaic images of the property photogrammetry. Eight projects with an average of 10,000 images each were processed during 2020 and 2021, with four projects finalized during the winter of 2021 to cover the entire Johnson Tract Property area. Final DSMs and orthomosaic images were merged using ArcGIS pro. The final coordinate system for the DSMs and orthomosaic images is NAD83(2011) / UTM Zone 5 – EPSG:6334 + NAVD 88 height – EPSG: 26935 + 5703 [GEIOD 12B].

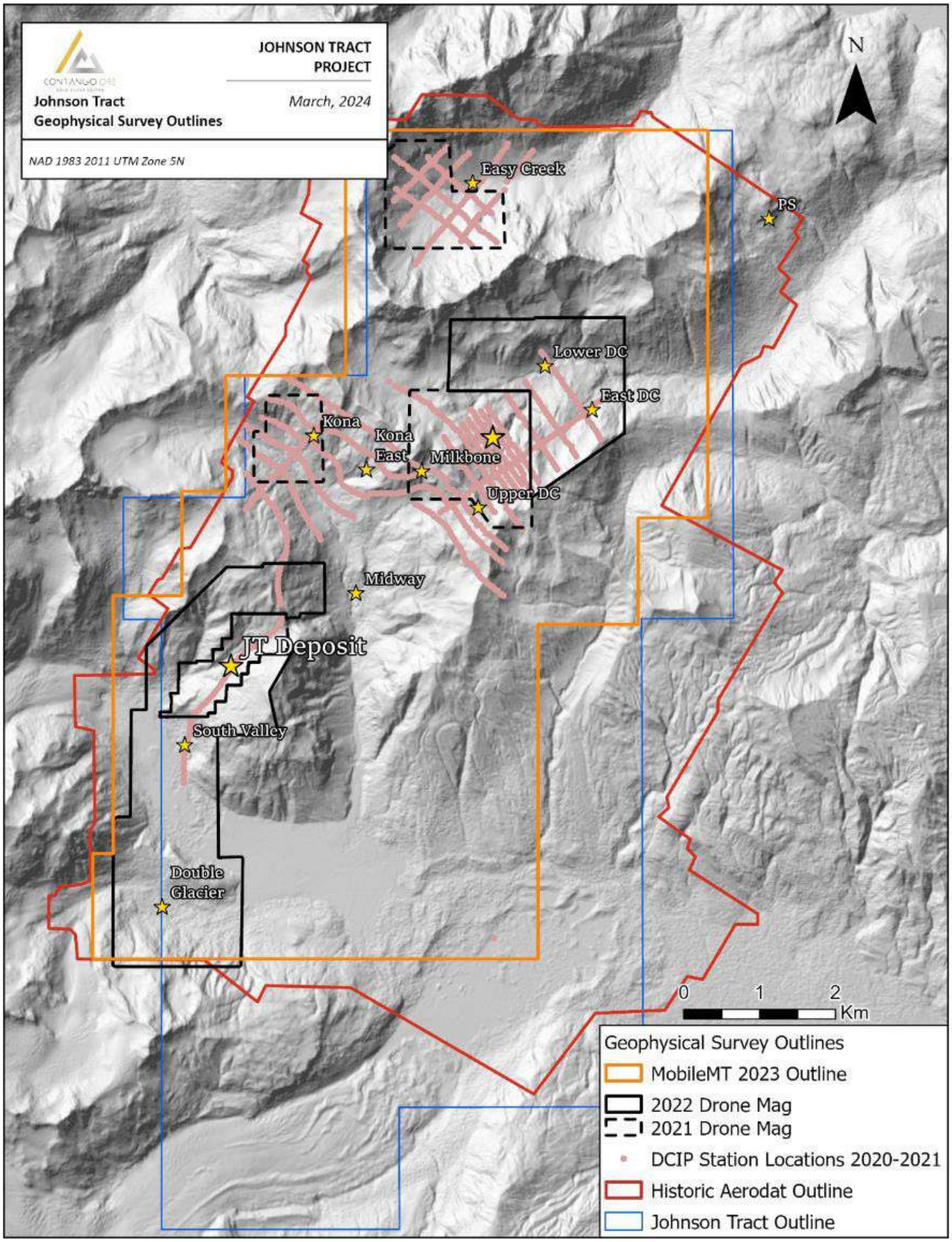


Figure 5-6 Map showing historic property-scale geophysical survey extents

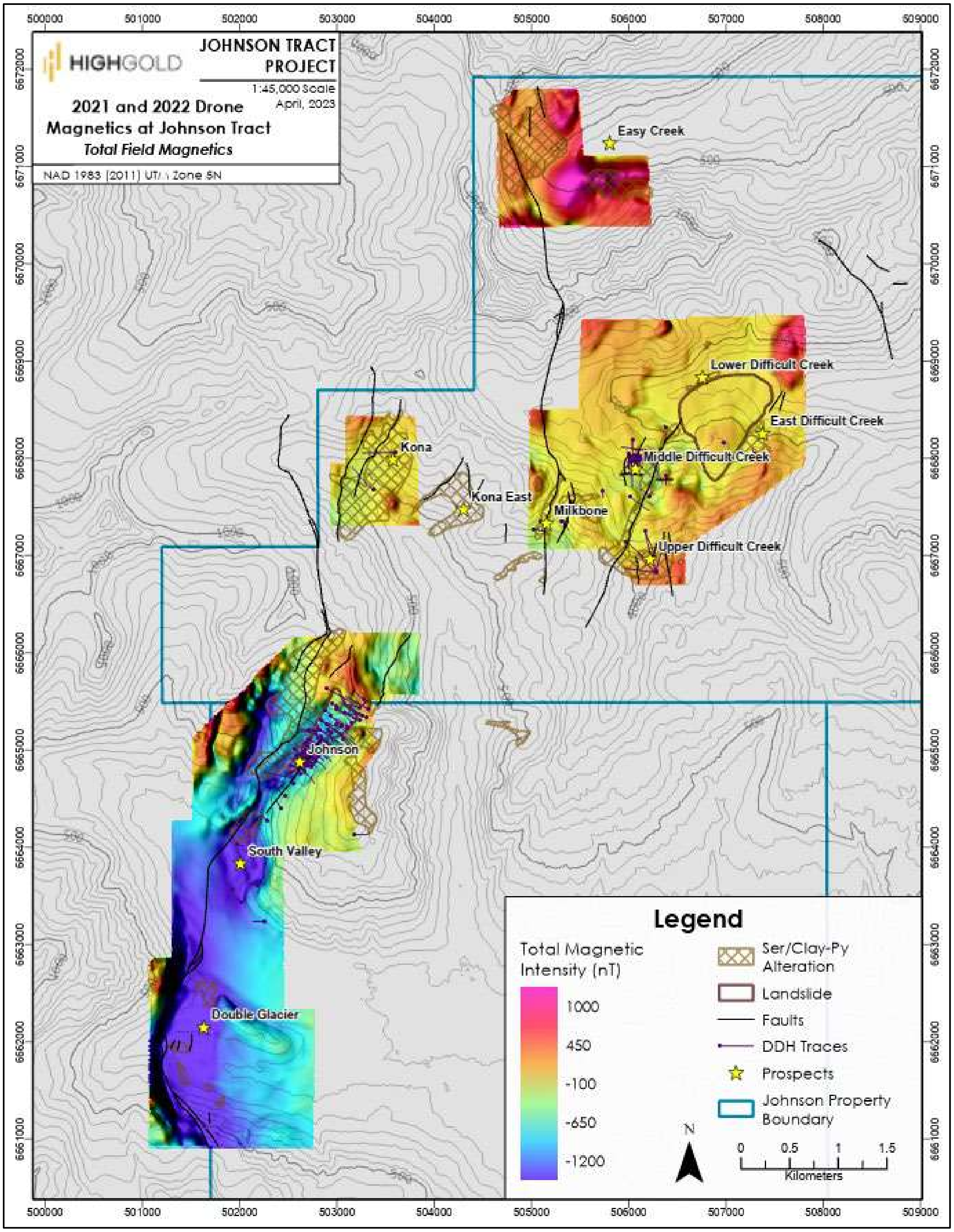


Figure 5-7 Merged 2021-2022 Airborne Magnetic Surveys – Total Field Magnetics

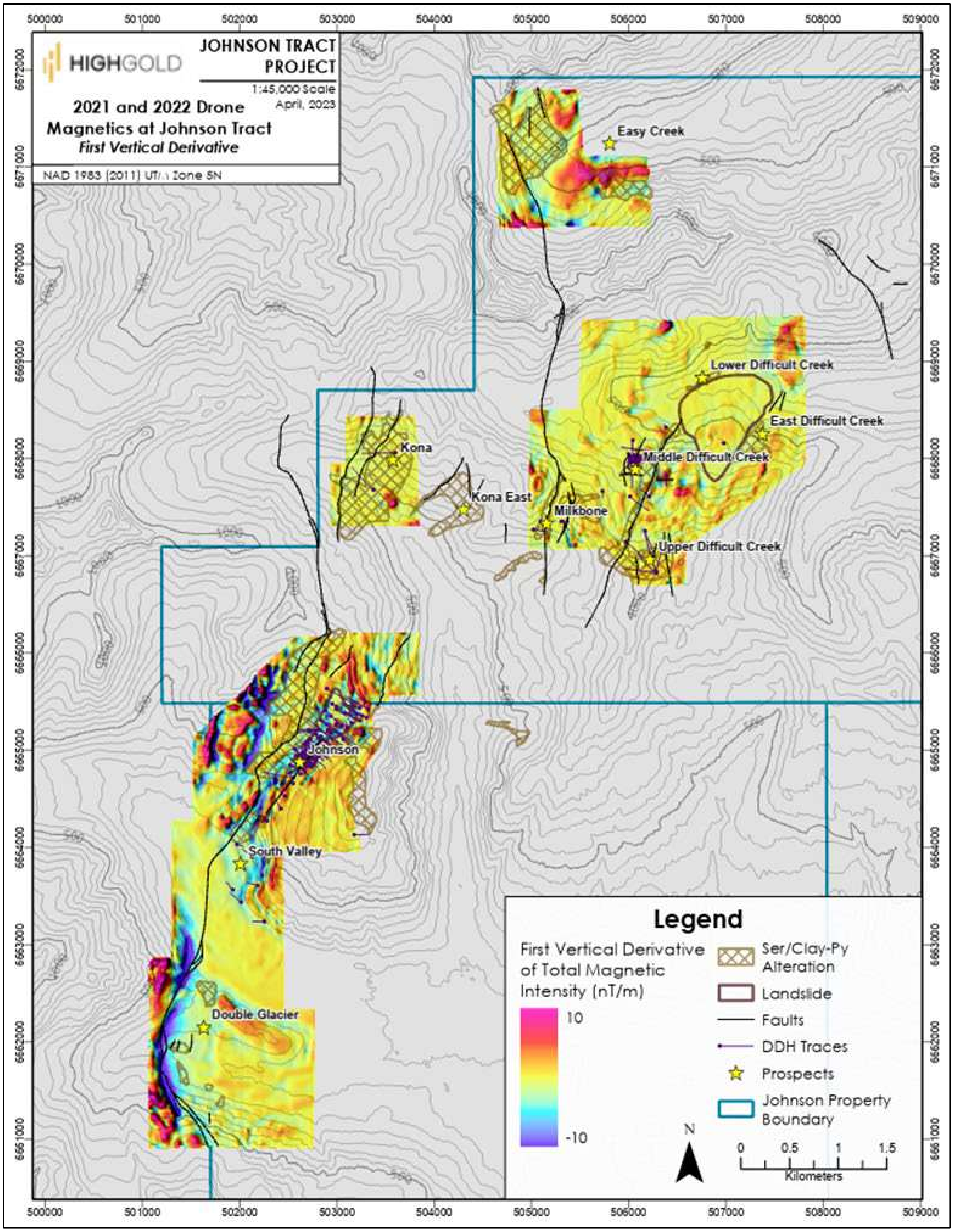


Figure 5-8 Merged 2021-2022 Airborne Magnetic Surveys – First Vertical Derivative

5.6.4.3 Drilling

From June 22nd through to October 18th, J T Mining completed 44 drillholes totalling 16,208 m (53,175 ft.) focused on two areas: 1) 25 infill and step-out holes drilled to the northeast and southwest of the

Johnson Tract Deposit; and 2) 17 holes in the DC area testing the Upper DC, Middle DC and Central Fault targets, and 2 holes at the Kona prospect (Table 5-2).

The program successfully demonstrated the impressive width and high-grade continuity of the Johnson Tract Deposit and successfully extended footwall copper-rich mineralization down-dip/down-plunge. Step-out drilling also expanded portions of the Johnson Tract Deposit, which remains open along strike and at depth.

Hole JT21-123 on Figure 5-4 intersected zinc-rich VMS-style mineralization and provided insight into new styles of mineralization.

As detailed in Section 5.2, in 1983, Anaconda geologists discovered an outcropping of metal-rich massive sulfide with values of 22.1 g/t Au and 178 g/t Ag over 1.5 m (4.92 ft.) at the Middle Difficult Creek prospect called the R.A.T showing. In 2021, J T Mining revisited the R.A.T. showing and reinterpreted the trend of mineralization to successfully intersect high-grade mineralization, including 6.40m (20 ft.) at 577.9 g/t Au, 2,023 g/t Ag, 2.15% Zn, and 0.30% Cu, in hole DC21-010. Assays were not received until the end of the drill season, and follow-up drilling was not completed until 2022. J T Mining named the new zone Ellis Zone in recognition of the Anaconda geologist, Bill Ellis.

Seven holes were drilled to test the Upper DC vein zone, which has numerous, up to 2 m (6 ft.), high-grade low-sulfidation style epithermal quartz-sulfide veins at surface hosted within a quartz-feldspar porphyritic intrusive unit (Figure 5-9). All these holes intersected low-sulfidation quartz veins, but none carried the grade observed at surface. Follow-up holes are planned to test the structures within deeper volcaniclastic stratigraphy.

Three holes tested the strongly altered Central Fault system (DC21-018, -022, and -026). No significant mineralization was intersected, however these holes confirmed that the fault is altered and weakly mineralized along its strike length.

No significant assay results were received from two holes drilled at the Kona prospect (KN21-001, and -002); however, the scale, intensity and character of the alteration, including large intercepts of quartz-pyrophyllite alteration intersected in drill core suggests the presence of a large magmatic hydrothermal system with potential for gold and copper mineralization. Given the alteration scale, Kona remains a high priority target and data gained from these two holes will be used to design follow-up drill programs.

Significant assay highlights from 2021 drilling are shown in Figure 5-4 and Table 5-3, Table 5-4, and Table 5-5 located at the end of this Chapter.

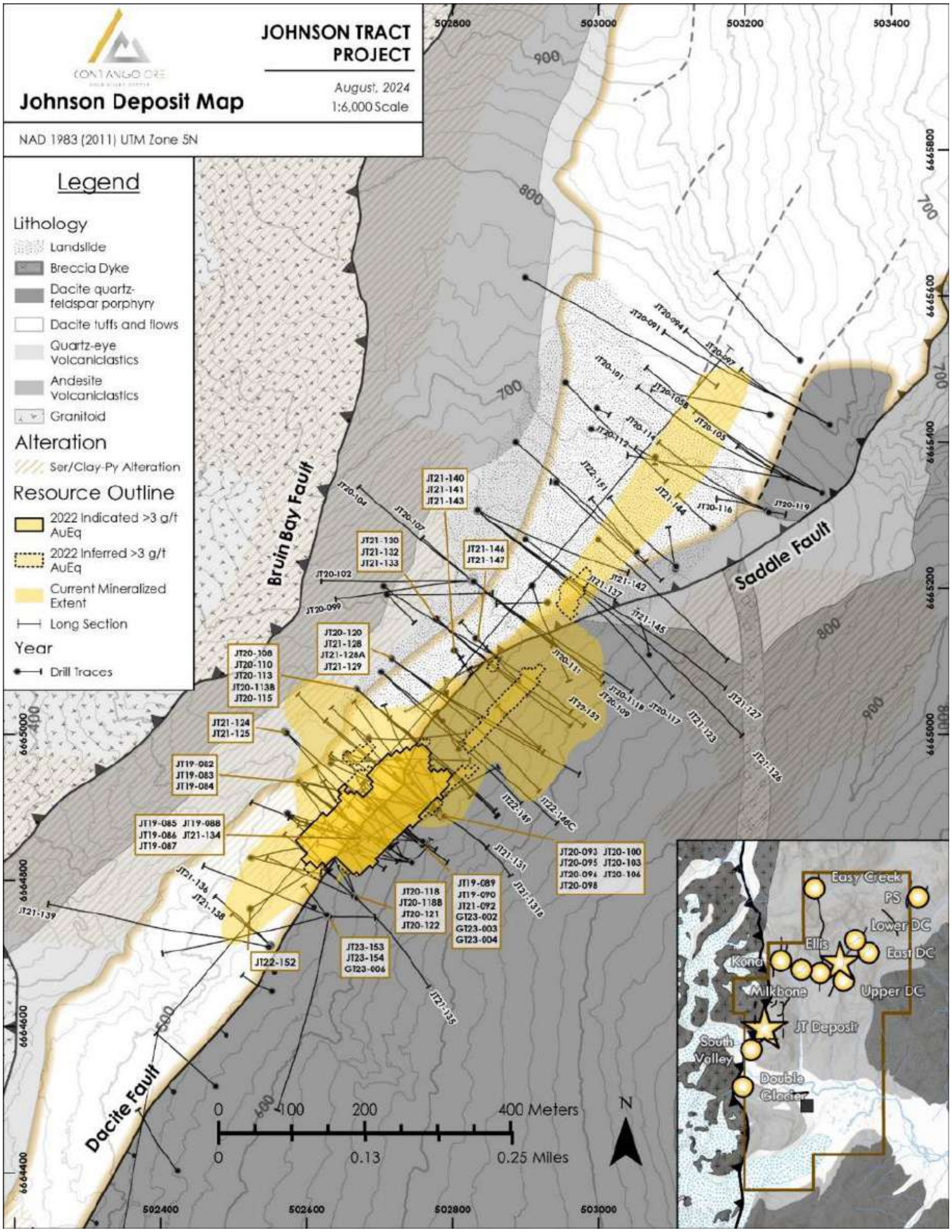


Figure 5-9 *Simplified geology map of the Johnson Tract Deposit area showing projected drillhole traces*

5.6.5 2022 Exploration Program

5.6.5.1 Surface Exploration

The 2022 surface exploration program focused on the DC area, with a lesser effort completed on the Easy Creek, South Valley, and Double Glacier prospects. John Proffett continued mapping and prospecting north of the Johnson Tract Deposit area toward Kona creek.

An updated property scale geology map was produced based on the new mapping, combining previous historic maps and ongoing detailed mapping by John Proffett (see Chapter 6 for more details).

During the 2022 field program, 276 rock chip and rock grab samples and 62 soils samples were collected across the Johnson Tract Deposit, Kona, DC, Milkbone and Easy Creek prospects (Figure 5-2 and Figure 5-3).

J T Mining began Acid-Base Accounting (ABA) work in 2022 based on advice from pHase Geochemistry. A total of thirteen samples were collected from surface and drill core of the quartz feldspar porphyritic dacite unit (QFP) located in the hanging wall of the Johnson Tract Deposit. This program was completed to support anticipated permitting efforts in advance of constructing a proposed 1800m (5,905 ft.) exploration ramp to further evaluate the Deposit from underground. Based on the mineral composition, this unit was anticipated to be non-acid generating and to have limited neutralization potential in the way of carbonate minerals. Analytical results from SGS Natural Resources (SGS) confirmed the dacite QFP to be non-PAG.

Re-logging of historic drill core was completed on select drillholes throughout the Project. Infill sampling of select drillholes was also completed to fill gaps in the historic database where no previous sampling was completed. A total of 318 infill samples were taken from 12 drillholes throughout the Deposit area and DC.

5.6.5.2 Geophysics & Remote Sensing

Pioneer Exploration Consultants Ltd. (Pioneer) completed a 511 line-km (317 line-mi) airborne magnetic survey to augment a survey that was flown in 2021(Figure 5-6 and Table 5-1).

The data show a magnetic low (mag destruction zone) associated with the main Johnson Tract Deposit, bullseye magnetic anomalies worthy of follow-up at Kona, and an anomaly associated with a quartz-diorite plug at EC (Figure 5-7 and Figure 5-8). New 2D & 3D products from consultant Sean Walker greatly support mapping and geologic interpretation.

In 2022, Kodiak Mapping, Inc. (KMI) was tasked with planning and executing the aerial acquisition of Digital Imagery and LiDAR data along the proposed easement alignment from the Johnson Tract Deposit to Cook Inlet (Figure 5-10). The airborne lidar and imagery data were collected simultaneously at approximately 10 points per square meter (PPM) and 0.5’ pixel resolution, respectively. Ground control for this project was completed by Recon LLC and consisted of base station control for the acquisition of the lidar and vertical ground control and checkpoints for the calibration and validation of the lidar data. The lidar sensor was a Riegel VQ-780iis and the acquisition camera was a Leica RCD-30, both mounted to a B3 helicopter flying approximately 1,500 meter (5,000 ft.) above ground level. Three ground-based GPS receivers were used to control the Project. This data was used to process the trajectories collected during the flight mission. Final products include 4-foot Resolution DEM in GeoTiff Format, 4-foot CI Topographic Mapping in ESRI Shapefile (display resolution is terrain dependent), and 4-Band (RGB) orthophoto mosaic 0.50-foot pixel (all prepared in m).

Figure 5-10 Outline of 2022 Airborne Lidar and Imagery Survey

5.6.5.3 Drilling

From July 5th through to October 11th, the Company completed 57 drillholes totalling 10,346 m (33,944 ft.) focused on step out drilling at the Johnson Tract Deposit and the Ellis Zone, along with further testing of the Central Fault system, other DC targets, and new untested targets at the Milkbone prospect (Table 5-2).

Five drillholes totalling 2,738 m (8,982 ft.) infilled and expanded the Johnson Tract Deposit along strike to the northeast. The objective was to expand the mineral resource. One infill drill hole (JT22-152) was drilled at a new orientation, parallel to the long-axis of the Deposit and into the lower southwest portion of the Indicated Resource to gain a better understanding of the structural and geological controls on mineralization and to test for east-west offset faults. The other holes tested gaps in the lower grade Inferred Resource northeast of the main high-grade Deposit.

Initial J T Mining drillholes from 2021 resulted in the discovery of near-surface bonanza-grade mineralization at the R.A.T. massive sulfide prospect at Middle Difficult Creek, which returned 577.9 g/t Au and 2,023 g/t Ag over 6.40 m (21 ft.) in hole DC21-010. Results were not received until the end of the season, so no 2021 follow-up drilling was completed. Subsequent geological modeling during the

2021-2022 off-season inferred an east-west striking, steeply north-dipping trend to the mineralization that became the focus for the 2022 drill program at what is now referred to as the Ellis Zone.

A total of 43 drill holes for 6,056.4 m (19,870 ft.) were completed at the DC Prospect, including 39 holes at the Ellis Zone and 5 holes at other nearby targets. Drillholes at the Ellis Zone were completed as fans of holes in a close-spaced (12.5 to 50-meter) grid pattern with the objective of defining the geometry, geological controls, and grade distribution of this significant new mineralized zone. Drilling defined high-grade precious and base metal-rich mineralization over a strike length of 125 m (410 ft.) and from surface to a depth of 225 m (738 ft.) with an average true thickness of 10 to 15 m (32 to 49 ft.) within the plunging core of the zone. Mineralogy, veining and alteration of the Ellis Zone are similar to the main Johnson Tract Deposit.

Two structures were tested at the Milkbone prospect: the main Milkbone fault (MB22-001, -002, and -006) and a smaller oblique splay fault to the east (MB22-003, -004, and -005). Both faults are altered and mineralized and warrant follow-up drilling (Table 5-5). The splay target drilling tested below an outcropping 1.5 m (~4 ft.) sulfide-rich fault breccia and successfully intersected complex altered and mineralized breccia at depth in holes MB22-003 and -004.

A single hole (KN22-003) located approximately 500 m (1,640 ft.) north of previous drilling at Kona to test along strike of a possible host structure and stratigraphy, and to test modeled chargeability and conductivity anomalies at depth. No significant values were intersected, though alteration resembles that in previous Kona holes.

Other drilling-related activities were completed included the commissioning of an onsite sample preparation facility for crushing and pulverizing drill core samples, which significantly reduces assay turn-around time and enables more efficient follow-up of positive results during the field program.

Significant assay highlights from 2022 drilling are shown in Figure 5-4 and Table 5-3, Table 5-4, and Table 5-5 located at the end of this Chapter.

5.6.6 2023 Exploration Program

5.6.6.1 Surface Exploration

The 2023 exploration program focused on refining the geologic map at DC and Double Glacier in preparation of drill targeting which led to a new vein field discovery at East DC and Lower DC. The East DC vein field discovery caused J T Mining to modify drill plans during the 2023 field season.

Ongoing mapping added to the property map and outlined new targets. A total of 315 rock samples, 81 soil samples and 77 stream sediment samples were collected across the Property in 2023 (Figure 5-2 and Figure 5-3).

During detailed mapping of the East DC prospect, J T Mining geologists discovered massive sulfide and quartz-sulfide vein float in the drainage below a prospect identified by Anaconda geologists. Following the float upstream lead to the discovery of abundant quartz-sulfide ± amethyst-barite-clay veins with variable pyrite, chalcopyrite, sphalerite, and galena exposed in the creek bed over approximately 100 m

(328 ft.). Based on the lack of detail in the creek on historic Anaconda geology maps, the creek was likely filled with snow year-round in the 1980s. Veins are not well exposed outside of the creek bed. Strong silicification of the QFP-clast breccia and underlying felsic tuffs that host the veins had been mapped by Anaconda geologists and confirmed by J T Mining. This is the strongest and most widespread silicification alteration observed on the property outside of the Johnson Tract Deposit area. This area was prioritized for detailed mapping, sampling and drilling during the 2023 field season. Surface grab samples returned low precious and base metal values, though a few samples contained high copper, zinc, silver, and/or gold values, indicating that the veins locally carry significant grade. Select grab sample assays include: 1.26% Cu and 17.8% Zn, 3.6% Cu and 11 g/t Ag, 2.3 g/t Au and 551 g/t Ag, 1.5% Cu and 11 g/t Ag, 4.6% Cu and 38.5 g/t Ag, 2.3% Cu and 10 g/t Ag, and 1.5% Cu and 14 g/t Ag.

Several historic holes were re-logged in 2023, and 54 infill samples were taken from two drill holes.

5.6.6.2 Geophysics & Remote Sensing

From August 13th to August 16th, Expert Geophysics Limited (EGL) completed a total of 667-line-km (2,188 line-mi) helicopter borne MobileMT electromagnetic and magnetic survey over the Property (Table 5-1).

The purpose of the survey was mapping bedrock structure and lithology, including possible alteration and mineralization zones, observing apparent conductivity corresponding to different frequencies, inverting EM data to obtain the distribution of resistivity with depth, and using VLF EM and magnetic data to study properties of the bedrock units. A total of 11 production flights were flown over a 61 sq.km (23.5 sq.mi) area. The survey lines are oriented E-W (N 90° E) at 100 m (328 ft.) spacing, with tie lines oriented perpendicular to the survey lines and spaced at 1000 m (3,280 ft.).

The results were delivered in the form of digital databases, maps, grids, sections, elevation slices and 3D voxels and a logistics report. Geotexera Inc. performed advanced 3D inversions of the data in January 2024.

The final results show apparent resistivity data to a depth of up to 2 km (1.24 mi.) and effectively highlight known alteration zones and identify several new targets (Figure 5-11). Interpretations from the EM and magnetic data combined with current geologic understanding has delineated a northeast-trending corridor of structurally controlled hybrid Epithermal/VMS-style mineralization at multiple stratigraphic levels. This corridor includes the Double Glacier, South Valley, Milkbone, Upper DC, East DC, and PS prospects and known mineralization at the Johnson Tract Deposit and Ellis Zone (Figure 5-11). The EM data have helped to refine drill targets at known prospect areas and identified several new targets within this corridor, most notably the area between Ellis Zone and East DC, and a new target referred to as the 'Midway' target, located 1.5 km (~1 mi.) northeast of the Johnson Tract Deposit.

The new EM and magnetic data have also improved ranking of the Easy Creek and Kona intrusion-related targets, which demonstrate Cu-Au porphyry potential. Pipe-like magnetic features below or adjacent to significant conductivity and chargeability anomalies are apparent at both Easy Creek and

Kona, which show porphyry-style geology, pathfinder elements, and alteration at surface. These targets are priority for follow-up surface exploration and drilling.

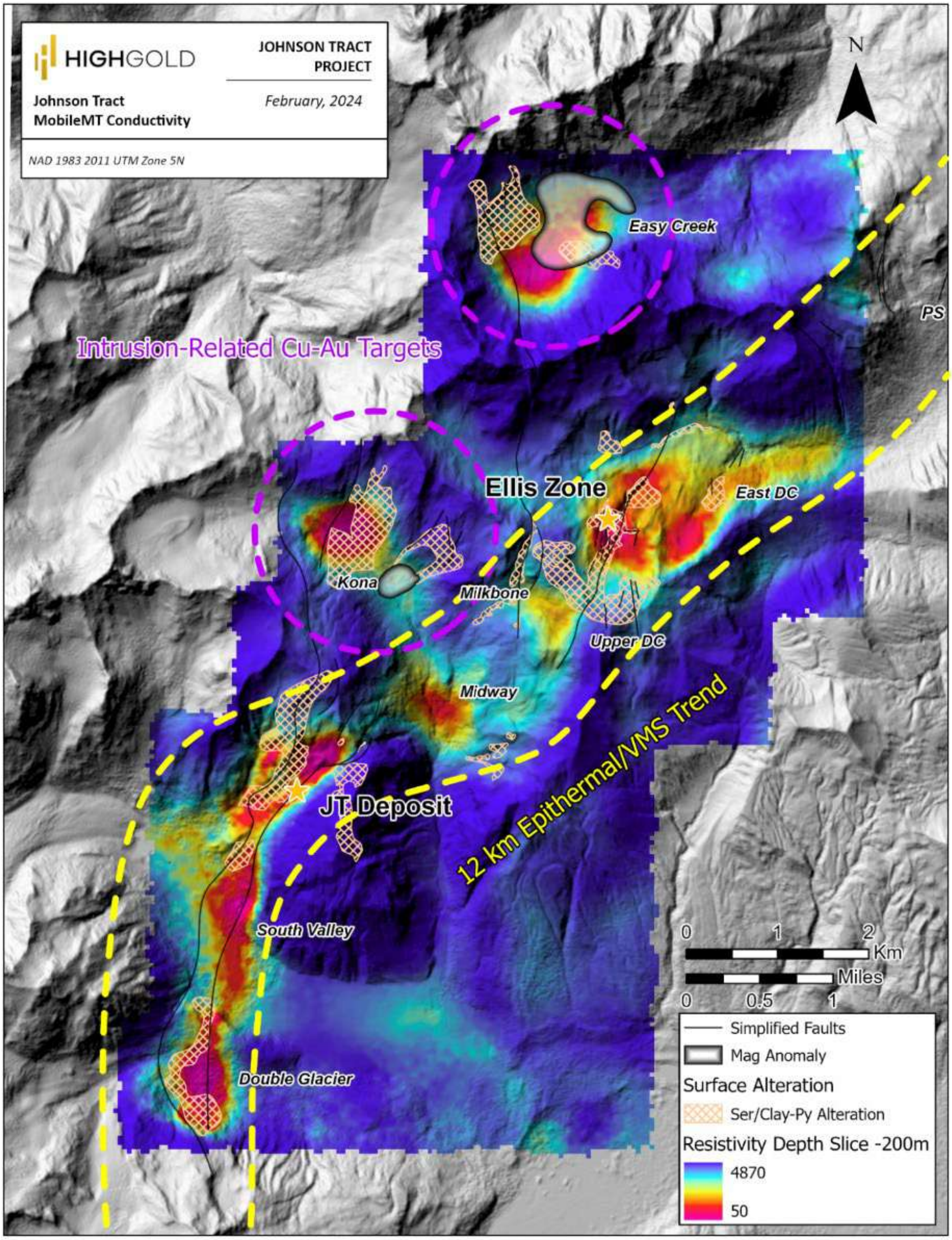


Figure 5-11 Plan Map of MobileMT airborne geophysical survey showing 3D inversion results at 200m below surface. Higher conductivity areas highlighted in reds and fuchsia (low resistivity)

5.6.6.3 Drilling

From July 24th through to September 20th, the Company completed 33 drillholes totalling 7,648 m (25,091 ft.), focused mainly on the DC area, including the Ellis Zone step outs, the new Landslide target at DC (DC23-077 and DC23-085), the new East DC vein zone (DC23-076, -078, -079, 080, and -081), and the Central Fault target (DC23-075). HighGold also drilled 2 holes at the South Valley prospect (JT23-155 and -156) and drilled the first 3 holes at the Double Glacier prospect (DG23-001 to -003). Two (2) exploration holes (JT23-153 and -154) and 6 hydrogeological/geotechnical holes (GT23-001 to -006) were drilled at the Johnson Tract Deposit (Table 5-2). Figure 5-12 is a compilation map showing all drilling on the property including historic drilling through 2023.

J T Mining drilled 6 hydrogeological and geotechnical holes through the Dacite QFP unit along the alignment of the proposed 1800m (5,905 ft.) long underground exploration ramp. One of the drill holes (GT23-004) was extended through the Johnson Tract Deposit as an infill hole and to characterize ground and water conditions for future mine modeling. Three (3) of these holes were completed with vibrating wire piezometers (VWPs) and 3 were completed as open standpipe and screened to monitor ground water levels and water quality. Hydraulic testing was completed in each drillhole using constant head injection-recovery and/or packer testing methods.

Separate from the geotechnical drilling, 2 exploration holes (JT23-153 and -154) stepped out 100 to 200 m (328 to 656 ft.) south of the Johnson Tract Deposit for potential extensions along strike. These holes intersected broad zones of strong alteration with local silver-lead-zinc mineralization.

Drilling at the Ellis Zone in 2023 included 50 to 100m (164 to 328 ft.) step-outs to sketch-in resource potential (Figure 5-13; DC23-069 to -074, DC23-082 to -084, and DC23-086 to -088). Drilling has now defined two distinct and overlapping styles of mineralization at the Ellis Zone; a steep-dipping, structurally controlled high-grade quartz vein and sulfide breccia zone and a zone of shallow-dipping, broad, lower-grade potentially stratigraphically controlled mineralization (Figure 5-14). The current interpretation is of a broad zone of stringer-style mineralization with local structurally controlled high-grade shoots. Mineralization has now been intersected over a length of 200 m (656 ft.) and to a depth of 225 m (738 ft.).

Eight (8) reconnaissance drill holes were completed across a 1 km (0.62 mi.) east-west trend between the Ellis Zone and the East DC prospect area. The holes targeted mapped structures, alteration and mineralization as well as blind geophysical and geological targets that project beneath an area of landslide cover. Only two large landslides are present at the Johnson Tract Project area: one above the Johnson Tract Deposit and one between the Ellis Zone and East DC prospect. The interpretation at the Johnson Tract Deposit is that glacial retreat, thawing of permafrost, and dissolution of anhydrite alteration by groundwater may have combined to trigger a mass wasting event above the Johnson Tract Deposit. A similar interpretation is proposed at DC. A large 700 m (2,296 ft.) wide landslide is present between the EDC prospect and the Central Fault, which is altered and mineralized along its length. The landslide shows alteration and quartz-sulfide veins in outcrop on all sides where outcrop occurs. It is interpreted that the landslide overlies a significant alteration system. Two (2) holes were drilled in 2023 to test this theory: one drillhole on the east side near the EDC prospect (DC23-077) and one on the west side near the Central Fault (DC23-085). Both holes intersected anomalous mineralization and strong alteration, including anhydrite veins or quartz veins. More drilling is recommended.

One (1) hole tested the Central Fault system at depth below alteration observed at surface (DC23-075). The Central Fault is altered and mineralized along its length and has the same orientation as the Johnson Tract Deposit. The drillhole intersected anomalous mineralization, strong vector geochemistry, and significant alteration, including nodular anhydrite. More drilling along the Central Fault is recommended.

East DC drilling intersected significant new zones of quartz-sulfide stockwork veining in 5 holes (DC23-076, -078, -079, 080, and -081), with anomalous silver-copper geochemistry that warrant additional follow-up. Significant results include 3.9m (12.8 ft.) at 97 g/t Ag, in hole DC23-075, 1.3m (4.27 ft.) at 2.7% Cu and 23 g/t Ag, in hole DC23-076, and 1.2m (3.94 ft.) at 1.6% Cu, in hole DC23-080 (Table 5-5). At least two distinct vein zones, approximately 20m (66 ft.) thick are intersected in drillholes. Veins are quartz-sulfide ± clay, barite, amethyst, and typically contain abundant pyrite and chalcopyrite ± sphalerite, galena. These veins locally exhibit vuggy, colloform, and cockade textures. East DC drillholes did not intersect high-grade mineralization, but follow-up is warranted, as texturally and mineralogically these veins strongly resemble low-grade veins surrounding and footwall to the high-grade Johnson Tract Deposit, and strong silicification observed on surface is the most significant on the property outside of the Johnson Tract Deposit that could be peripheral to a larger deposit.

J T Mining drilled 2 holes at the South Valley target (JT23-155 and -156), supporting new Dacite Fault interpretations and anomalies from new geophysical surveys. The drillholes intersected altered volcaniclastic rocks that are host to the Johnson Tract Deposit to the northeast, but no significant mineralized intercepts.

J T Mining drilled 3 holes at the previously untested Double Glacier prospects (DG23-001 to -003), 3 km (1.86 mi.) south and along trend of the Johnson Tract Deposit. Though no major mineralized intervals were intersected, the holes did intersect the Johnson Tract Deposit host dacite volcanic stratigraphy with weakly anomalous values of Au, Ag and Zn, and the same unique nodular anhydrite alteration assemblage which surrounds the Johnson Tract Deposit. Of additional significance, drill hole DG23-003 retuned a 1.3 m (4.27 ft.) at 2.3% Zn within a mudstone unit at the Double Glacier prospect, highlighting potential for VMS-style mineralization. Also of note, the drillholes did not intersect the stratigraphy that hosts Zn-rich veins at surface at the Double Glacier prospect, because holes were terminated before crossing the edge of the property boundary. This stratigraphy dips southeast below the property and is now well defined by 2023 drilling. Future drilling should target this deeper stratigraphy east of the property boundary. Further work is recommended.

Significant assay highlights from 2023 drilling are shown in Figure 5-4, Figure 5-13, Figure 5-14, and Table 5-3, Table 5-4, and Table 5-5 located at the end of this Chapter

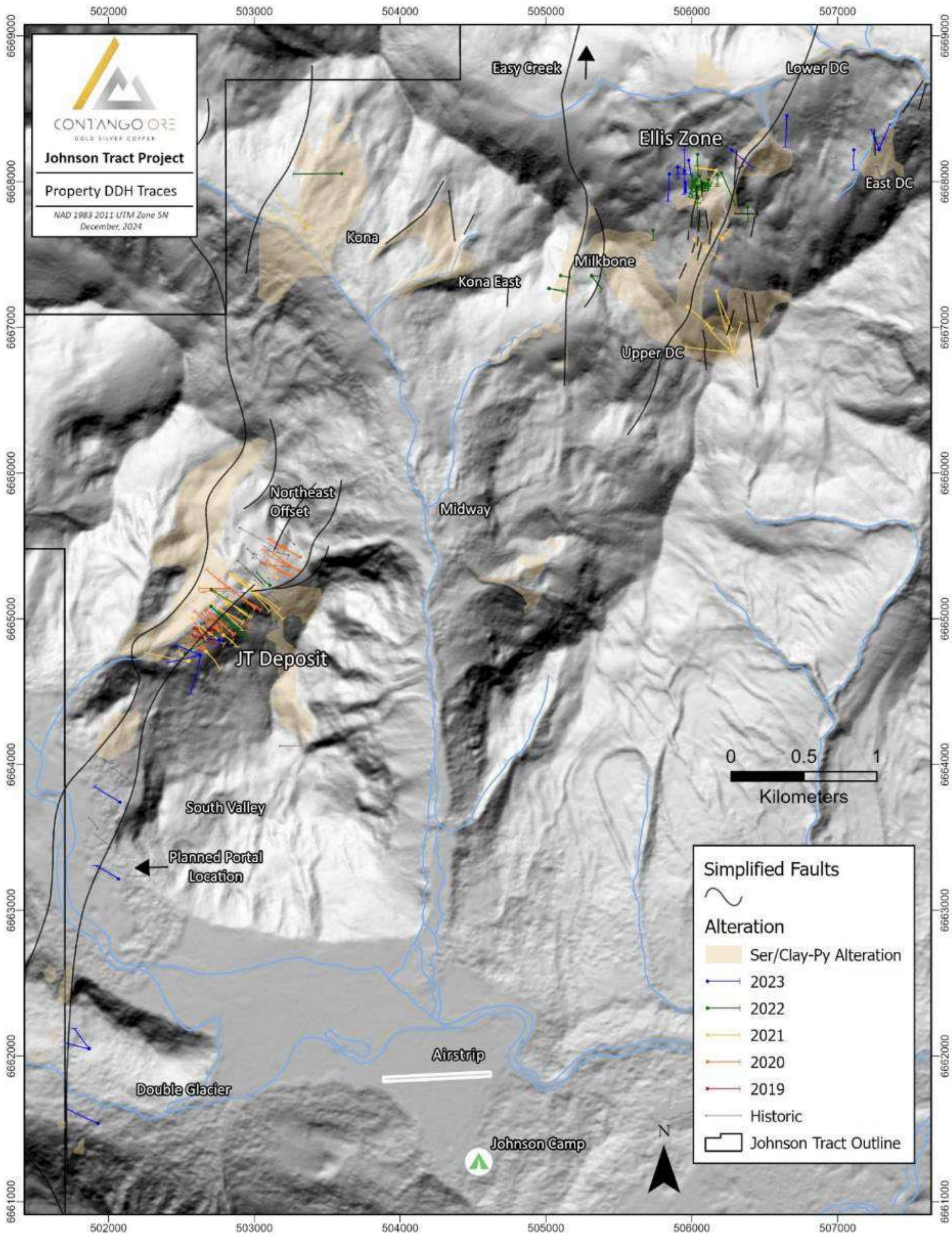


Figure 5-12 Map showing all Johnson Tract Property drill traces by year from historic to 2023

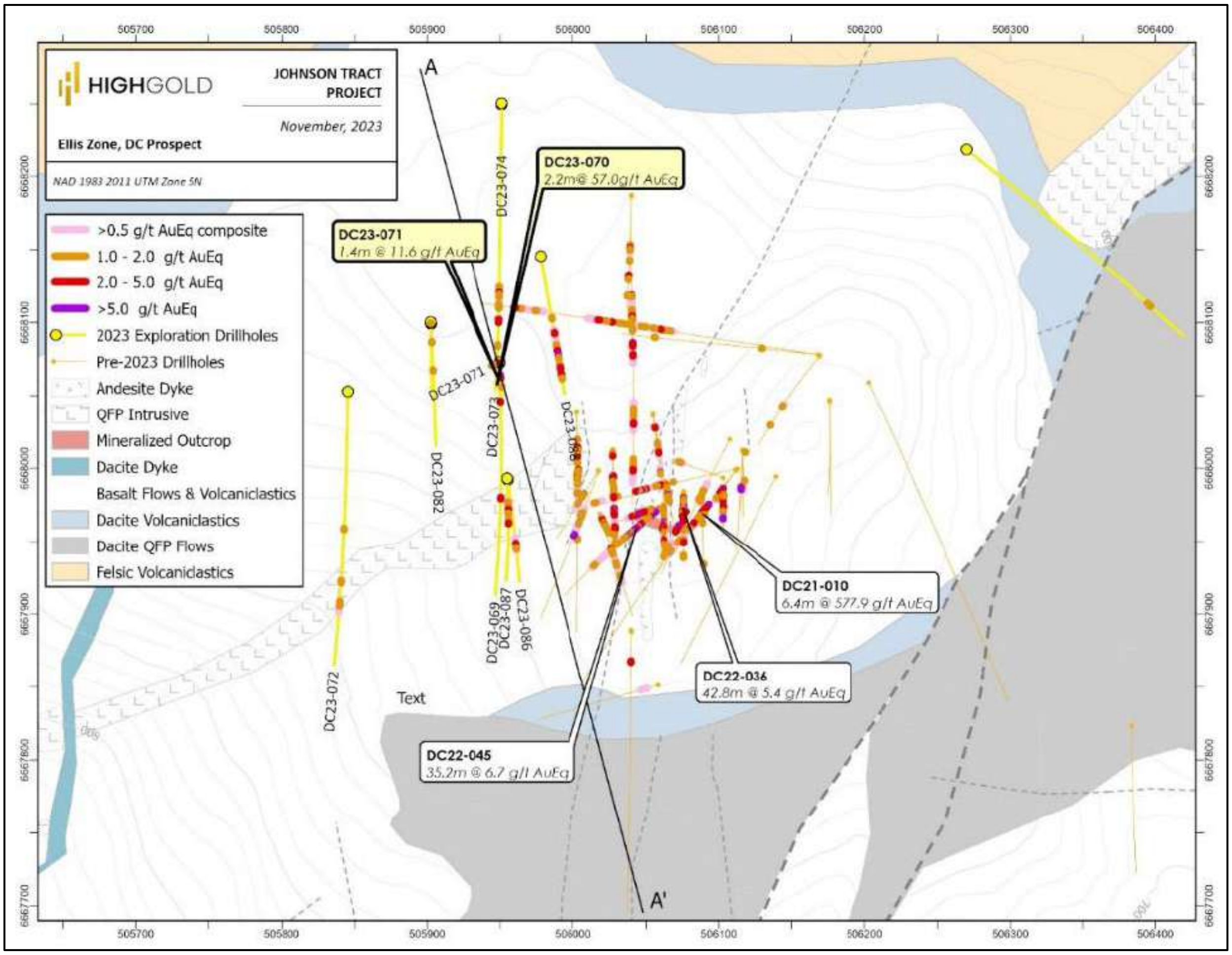


Figure 5-13 Ellis Zone DDH Plan Map showing 2023 Hole Locations and Key Results

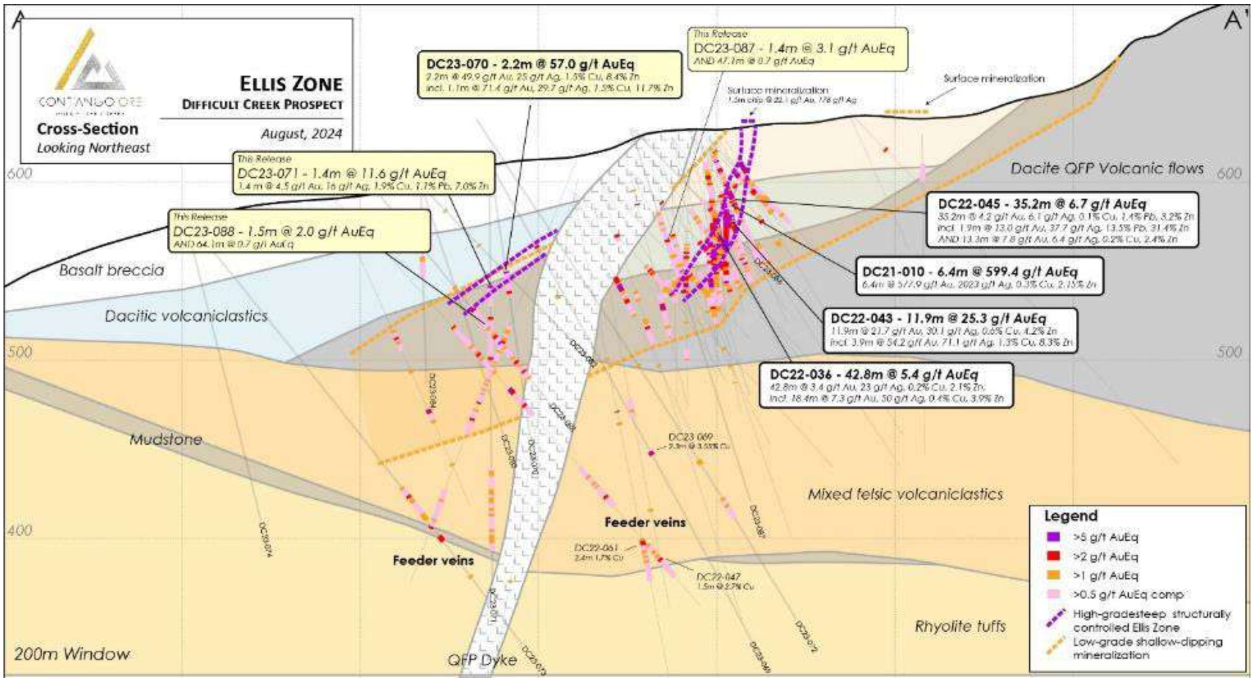


Figure 5-14 Ellis Zone Schematic Cross-Section showing 2023 Hole Locations and Key Results. 200m window

Table 5-3 Significant Johnson Tract Deposit Intersections

Drillhole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Cu (%)	Pb (%)	Zn (%)	AuEq Total (gpt)	AuEq x Length (gpt*m)
JR82-001	4.6	30.2	25.6	1.72	3.81	0.28	0.17	5.2	5.23	134
JR82-003	194	244	50	2.14	7.01	0.56	1.18	10.23	9.32	466
JR82-004	155.4	264	108.6	10.39	8.07	0.71	2.01	7.64	16.50	1792
Incl	196	244	48	21.1	12.33	0.88	2.86	9.93	29.09	1396
Incl	200	212	12	67.43	18.6	0.87	2.64	9.3	75.03	900
JR83-007	182	218	36	13.41	3.57	0.41	0.2	2.01	15.21	548
JR83-009	2.9	24.8	21.9	0.29	12.18	0.19	0.25	9.47	6.32	138
JR83-012	178.5	205.7	27.2	15.16	7.05	1.23	0.2	11.51	23.65	643
Incl	178.5	188.4	9.9	40.65	11.52	1.8	0.01	24.76	57.66	571
JR84-015	307.5	327.5	20	0.39	0.79	0.16	0.42	6.39	4.50	90
JR84-028	141.3	248.7	107.4	1.92	4.48	0.37	0.27	7.15	6.74	724
Incl	210.8	246.6	35.8	3.38	7.63	0.47	0.34	13.46	12.10	433
Incl	233.7	239.7	6	17.69	7.87	0.43	0.12	19.95	30.12	181
JR87-029	65.7	164.5	98.8	2.02	4.09	0.39	0.71	7.12	6.98	689
Incl	100.4	159	58.6	3.25	5.06	0.56	0.92	8.13	9.09	533
JR87-031	67.4	128.7	61.3	4.94	6.54	0.48	0.45	7.48	10.17	623
Incl	75.2	83.8	8.6	22.34	12.97	1.34	0.01	7.68	28.71	247

Drillhole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Cu (%)	Pb (%)	Zn (%)	AuEq Total (gpt)	AuEq x Length (gpt*m)
JR87-032	173.9	207.8	33.9	2.36	9.22	1.79	0.73	14.69	13.62	462
Incl	177.4	185.1	7.7	7.79	7.62	3.05	0.03	27.22	27.81	214
JR87-033	43.1	87.7	44.6	1.34	3.24	0.27	0	4.77	4.53	202
JR88-034	246.7	318.1	71.4	20.94	9.81	1.23	1.51	5.21	26.14	1867
Incl	257.6	266.5	8.9	88.48	22.12	5.61	0.12	9.21	101.30	902
Incl	277.5	281	3.5	34.47	14.42	2.89	2.46	15.09	47.95	168
Incl	307.8	312.3	4.5	49.51	7.99	0.85	2.77	6.58	55.41	249
JR90-040	243.7	284.4	40.7	1.81	5.39	0.68	0.65	7.78	7.52	306
JR90-042	259	318.4	59.4	4.55	2.89	0.26	0.39	2.39	6.44	383
Incl	301.2	304.5	3.3	29.07	8.05	0.26	0.56	3.06	31.46	104
JR93-064	197.7	245	47.3	6.11	3.3	0.53	0.62	3.8	9.25	438
Incl	222	235	13	19.42	7.38	0.96	2.15	7.05	25.54	332
Incl	224	226	2	52.12	20.57	1.5	7.81	12.19	63.84	128
And	266	296.3	30.3	9.14	9.52	1.37	2.05	4.89	14.50	439
Incl	279	289	10	26.57	17.93	2.05	5.94	11.03	37.70	377
Incl	279	281	2	129.82	26.58	4.1	0.08	3.38	137.31	275
JR93-065	150	249.7	99.7	10.07	6.68	0.9	1.27	6.34	15.41	1537
Incl	154.2	168	13.8	26.99	10.84	1.53	1.31	3.55	31.54	435
Incl	155	160	5	52.8	10.29	0.87	0.73	3.67	56.40	282
Incl	180	183	3	32.82	10.17	0.75	2.62	10.3	40.76	122
Incl	189	193.4	4.4	32.46	14.73	1.44	4.01	9.91	41.53	183
Incl	239	246.7	7.7	28.59	9.93	0.97	0.28	5.13	33.03	254
JR93-066	268	278	10	11.17	3.53	0.36	0.47	2.09	13.04	130
JR93-067	139	276.7	137.7	11.28	3.95	0.47	0.54	2.38	13.49	1857
Incl	219	276.7	57.7	21.65	5.05	0.46	0.66	2.44	23.93	1381
Incl	250	257	7	45.58	9.99	0.39	1.93	1.44	47.62	333
Incl	270	272	2	172.51	28.86	2.31	0.16	1.54	176.69	353
JR93-068	140.8	253	112.2	10.34	6.35	0.66	1.48	5.01	14.66	1644
Incl	187	208	21	19.59	11.05	1.26	2.59	8.48	27.11	569
Incl	187	195	8	39.22	12.73	1.1	2.45	9.61	47.17	377
Incl	187	189	2	165.75	58.81	5	10.94	43.37	201.67	403
Incl	242	251	9	26.65	16.65	1.38	5.74	8.88	35.59	320
JR93-069	173	232	59	14.2	9.13	0.98	2.24	4.37	18.81	1110
Incl	179	206	27	22.49	15.11	1.36	4.35	6.75	29.70	802
Incl	179	188	9	51.6	22.21	3.04	0.88	6.94	60.05	540
Incl	185	188	3	109.85	36	3.75	1.74	8.09	120.29	361
Incl	222	224	2	48.6	8.4	0.6	0.01	3.19	51.33	103
JR93-070	103	133	30	4.8	4.86	0.46	0.55	6.14	9.23	277

Drillhole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Cu (%)	Pb (%)	Zn (%)	AuEq Total (gpt)	AuEq x Length (gpt*m)
JT19-082	137	261	124	10.87	8.23	0.79	1.43	6.35	16.15	2002
Incl.	153.2	261	107.8	12.42	8.92	0.88	1.64	7.11	18.33	1976
Incl.	156.2	184.6	28.4	35.15	17	1.4	3.13	7.45	42.46	1206
Incl.	182.6	184.6	2	233.5	30.4	1.56	3.34	4.15	239.27	479
Incl.	198	217.2	19.2	6.25	11.13	1.59	2.12	13.07	16.75	322
JT19-083	1.5	10.5	9	5	9.38	0.28	3.22	11.28	13.10	118
And	75.9	106.6	30.7	2.75	8.85	0.29	3	5.47	7.36	226
JT19-085	67.8	127	59.2	8.16	5.94	0.39	0.72	8.8	14.13	836
Incl.	68.6	79.5	10.9	33.06	9.74	0.57	0.02	6.37	37.65	410
JT19-086	48.1	95.7	47.6	2.36	4.84	0.4	0.13	9.68	8.67	413
Incl.	63.1	84.1	21	3.79	5.3	0.42	0.21	14.18	12.81	269
JT19-087	34	78.8	44.8	0.59	17.85	0.11	0.18	2.08	2.19	98
JT19-088	114.7	266	151.3	4.1	4.2	0.38	0.43	3.06	6.56	993
Incl.	128	225.5	97.5	5.93	4.24	0.46	0.62	3.86	9.03	880
Incl.	135.5	158	22.5	12.59	4.91	0.36	1.07	3.65	15.58	351
JT19-089	226.6	301	74.4	1.08	5.03	0.59	0.64	4.51	4.74	353
Incl.	226.6	257.6	31	1.23	6.55	0.58	1.29	6.84	6.47	200
And	346	389.1	43.1	0.12	17.21	1.3	0.11	2.92	3.70	159
Incl.	355.2	389.1	33.9	0.14	21.6	1.59	0.14	3.44	4.45	151
Incl.	364	377.2	13.2	0.11	44.79	3.45	0.08	5.83	8.40	111
Incl.	366	373	7	0.08	66.27	4.67	0.08	9.69	12.42	87
JT19-090	253.9	329	75.1	10.01	6.03	0.57	1.11	9.36	16.66	1251
Incl.	257.1	289.1	32	4.05	7.75	0.66	1.62	17.86	16.01	512
And	300	328	28	21.68	6.03	0.58	0.96	3.18	24.65	690
Incl.	308	328	20	29.02	7.3	0.67	1.22	3.53	32.40	648
JT20-092	269.4	343.5	74.1	17.89	7.11	0.48	1.31	7.28	23.27	1724
Incl.	317.5	331.5	14	53.22	8.15	0.19	0.59	2.34	55.11	771
JT20-093	256.9	300.4	43.5	1.35	12.1	1.98	0.8	8.45	9.22	401
Incl.	256.9	275	18.1	1.22	11.67	2.47	1.14	14.91	13.62	247
JT20-095	245	286	41	1.82	5.92	1.04	0.32	3.82	5.55	228
JT20-096	204.9	225	20.1	11.51	3.64	0.49	0.01	3.1	14.00	281
Incl.	210	225	15	15.37	4.3	0.58	0.02	2.12	17.41	261
Incl.	221	225	4	43.7	6.9	0.76	0.57	0.005	44.91	180
And	311.1	350.2	39.1	0.19	26.3	1.64	0.15	0.69	2.99	117
JT20-106	246.4	304.3	57.9	1.31	5.58	0.61	0.58	3.25	4.24	245
Incl.	249.4	272.2	22.8	3.17	3.98	0.44	1.37	5.97	7.72	176
Incl.	249.4	266.8	17.4	3.93	4.88	0.57	1.78	7.58	9.73	169
Incl.	259.4	266.8	7.4	8.63	7.46	0.66	3.34	10.15	16.57	123

Drillhole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Cu (%)	Pb (%)	Zn (%)	AuEq Total (gpt)	AuEq x Length (gpt*m)
JT20-110	334.9	393.5	58.6	0.22	20.55	1.04	0.09	0.39	2.00	117
JT20-115	181	237.1	56.1	0.42	1.49	0.06	0.32	1.97	1.77	99
JT21-125	226.5	293.3	66.8	16.39	3.77	0.45	0.31	2.11	18.34	1225
Incl.	236.7	293.3	56.6	19.3	3.94	0.47	0.36	2.43	21.48	1216
Incl.	236.7	245.6	8.9	0.75	3.2	0.32	0.2	5.79	4.67	42
And Incl.	251.4	293.3	41.9	25.9	4.64	0.56	0.45	2.04	28.00	1173
Incl.	252.4	293.3	40.9	26.53	4.72	0.57	0.46	2.05	28.65	1172
Incl.	260.4	293.3	32.9	32.75	5.12	0.58	0.47	1.82	34.76	1144
Incl.	260.4	280.4	20	24	5.53	0.81	0.76	1.95	26.47	529
Incl.	270.4	279.4	9	44.85	6.63	0.88	0.59	2.23	47.53	428
Incl.	273.4	278.4	5	69.52	7.44	0.53	0.88	1.49	71.42	357
And Incl.	288.4	293.3	4.9	116.6	10.51	0.33	0.01	3.51	119.20	584
JT21-134	62.7	161	98.3	4.6	6.13	0.3	1.38	4.12	7.90	777
Incl.	66.3	151	84.7	5.29	6.67	0.34	1.6	4.56	8.97	760
Incl.	73	148	75	5.92	7.14	0.37	1.79	4.81	9.85	739
and Incl.	96	130	34	7.45	11.29	0.38	3.57	6.96	13.26	451
JT22-152	207.6	328.1	120.5	18.76	6.17	0.55	0.93	3.86	22.08	2661
Incl	230.2	240.2	10	39.79	18.13	1.06	2.54	17.02	52.15	521
And Incl	258	300	42	22.56	5.22	0.41	1.47	2.96	25.34	1064
And Incl	308	327.1	19.1	41.35	6.24	0.27	0.69	2.20	43.27	826
Incl	318.1	319.1	1	225.00	29.10	0.60	0.78	3.58	228.41	228
And	401.3	454.5	53.2	0.10	10.92	0.40	0.07	0.52	1.05	56
Incl	420	433.5	13.5	0.06	13.80	0.48	0.02	1.26	1.56	21

Table includes intersections with AuEq x Meters value of 100 or greater.

Gold Equivalent (AuEq) based on *$1650/oz for Au, US$20/oz for Ag, US$3.50/lb for Cu, US$1.00/lb for Pb and US$1.50/lb for Zn and payable metal recoveries of 97% for Au, 85% for Ag, 85% Cu, 72% Pb and 92% Zn.*

Table 5-4 Significant Ellis Zone Intersections

Drillhole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Cu (%)	Pb (%)	Zn (%)	AuEq Total (gpt)	AuEq x Length (gpt*m)
DC21-010	46.3	52.7	6.4	577.9	2023.0	0.30	0.23	2.15	599.9	3839
Incl	47.5	51.26	3.76	982.7	3436.0	0.44	0.18	2.80	1019.3	3833
Incl	47.5	48.76	1.26	2860.0	9990.0	0.88	0.25	5.04	2964.1	3735
DC21-011	54.2	99	44.8	0.8	7.0	0.05	0.15	0.46	1.4	61
Incl	54.2	60	5.8	4.9	15.4	0.24	0.09	0.93	6.1	35
Incl	54.2	56.5	2.3	11.4	25.3	0.54	0.03	1.46	13.4	31
DC21-015	135.4	227.1	91.7	0.2	0.6	0.05	0.09	0.75	0.7	69
Incl	145	196.2	51.2	0.2	0.7	0.06	0.12	0.83	0.9	44
And	270.8	300.9	30.1	0.0	0.3	0.09	0.03	1.03	0.8	24
DC22-034	34.8	49.5	14.7	4.0	17.7	0.27	0.75	4.18	7.3	107
Incl	41.4	47	5.6	7.8	36.0	0.49	1.45	9.17	14.6	82
DC22-036	41	83.8	42.8	3.4	23.3	0.21	0.83	2.06	5.4	232
Incl	42	60.4	18.4	7.3	49.9	0.44	1.78	3.92	11.2	206
Incl	47	50.7	3.7	18.0	86.8	0.91	1.62	4.05	22.9	85
DC22-043	37.1	49	11.9	21.7	30.1	0.61	0.38	4.20	25.4	302
Incl	37.1	43.7	6.6	38.3	48.8	0.89	0.37	5.48	43.3	286
Incl	37.1	41	3.9	54.2	71.1	1.26	0.48	8.29	61.6	240
Incl	37.1	38.5	1.4	92.8	138.1	2.22	0.95	19.80	108.9	152
DC22-044	38.5	75.2	36.7	1.1	3.7	0.09	0.18	0.99	1.8	67
Incl	46.4	68.2	21.8	1.6	5.3	0.13	0.17	1.41	2.8	60
Incl	46.4	66.7	20.3	1.7	5.6	0.14	0.18	1.46	2.9	58
Incl	52.8	54.8	2	8.3	8.9	0.41	0.44	4.00	11.4	23
DC22-045	4.6	57.1	52.5	3.0	5.5	0.10	1.01	2.38	4.9	255
Incl	9.1	44.3	35.2	4.2	6.1	0.12	1.40	3.19	6.7	237
Incl	9.1	11	1.9	13.0	37.7	0.08	13.51	31.42	36.2	69
And	30	43.3	13.3	7.8	6.4	0.23	1.31	2.35	10.0	132
DC22-046	29.1	80.6	51.5	3.2	6.0	0.12	0.26	2.08	4.7	244
Incl	56	70.8	14.8	10.1	13.8	0.28	0.46	5.97	14.3	212
Incl	56	65.7	9.7	15.3	20.0	0.42	0.60	8.58	21.3	207
Incl	57.5	64.3	6.8	21.3	25.1	0.55	0.61	10.70	28.7	195
Incl	57.5	59	1.5	62.5	10.5	0.77	0.59	10.50	70.0	105
DC22-060	53.1	69.2	16.1	0.4	4.7	0.21	0.19	3.97	3.1	49
Incl	57.8	60.8	3	0.7	6.4	0.31	0.42	11.03	7.8	24

Table includes intersections with AuEq x Meters value of 50 or greater.

Gold Equivalent (AuEq) based on *$1650/oz for Au, US$20/oz for Ag, US$3.50/lb for Cu, US$1.00/lb for Pb and US$1.50/lb for Zn and payable metal recoveries of 97% for Au, 85% for Ag, 85% Cu, 72% Pb and 92% Zn.*

Table 5-5 Significant intercepts from other prospects

Prospect	Drillhole	From (m)	To (m)	Length (m)	Au (gpt)	Ag (gpt)	Cu (%)	Pb (%)	Zn (%)	AuEq Total (gpt)	AuEq x Length (gpt*m)
Kona	KN21-001	241.8	242.5	0.7	0.46	0.0	0.00	0.00	0.00	0.5	0.3
Upper DC	DC21-016	9.8	10.9	1.1	0.11	110.0	0.01	0.02	0.02	1.3	1.4
	and	441.1	441.7	0.6	5.18	6.7	0.22	0.12	4.04	8.0	4.8
	DC21-021	246.9	247.5	0.6	1.75	42.2	0.06	0.22	0.21	2.5	1.5
	and	290.5	291.0	0.5	4.53	11.5	0.05	0.14	1.94	5.9	3.0
	DC21-025	46.0	47.3	1.3	0.29	2.6	0.02	0.02	1.09	1.0	1.3
	and	284.9	285.9	1.0	0.02	0.7	0.13	0.12	3.13	2.1	2.1
	DC21-026	200.0	201.5	1.5	2.66	4.0	0.01	0.32	0.31	3.0	4.5
	and	251.3	252.3	1.0	0.10	1.7	0.21	0.03	8.82	5.6	5.6
Milkbone	MB22-001	112.3	113.8	1.5	0.01	0.9	0.38	0.00	0.10	0.6	0.8
	and	130.0	131.4	1.4	0.34	0.0	0.14	0.00	0.28	0.7	1.0
	MB22-002	66.2	67.2	1.0	0.10	0.8	0.43	0.00	0.21	0.8	0.8
	and	71.6	73.1	1.5	0.03	0.6	0.07	0.00	0.69	0.5	0.8
	MB22-003	92.5	94.0	1.5	0.82	0.6	0.01	0.00	0.01	0.8	1.3
	MB22-004	71.3	76.3	5.0	0.07	1.1	0.06	0.07	0.52	0.5	2.4
	MB22-006	83.8	90.6	6.8	0.02	0.0	0.08	0.00	0.87	0.6	4.4
	incl.	89.8	90.6	0.8	0.01	0.0	0.16	0.00	1.95	1.4	1.1
East DC	DC23-076	60.6	61.9	1.3	0.07	22.5	2.68	0.01	0.06	3.8	4.9
	DC23-078	54.2	58.7	4.5	0.28	0.1	0.59	0.00	0.04	1.1	4.7
	and	85.4	86.9	1.5	0.09	10.8	0.93	0.00	0.02	1.4	2.1
	DC23-079	17.8	18.9	1.1	0.04	8.3	0.78	0.03	1.12	1.8	2.0
	DC23-080	51.3	52.5	1.2	0.05	0.2	3.77	0.00	0.00	4.9	5.8
Central Fault	DC23-075	230.0	233.9	3.9	0.11	97.3	0.01	0.01	0.01	1.2	4.5
Landslide	DC23-085	89.0	93.5	4.5	0.05	1.6	0.06	0.03	0.89	0.7	3.1
Double Glacier	DG23-003	136.2	137.5	1.3	0.03	3.5	0.04	0.31	2.27	1.6	2.0

Table includes select significant intercepts at prospects other than the Johnson Tract Deposit and Ellis Zone greater than 0.5 g/t AuEq.

Gold Equivalent (AuEq) based on *$1650/oz for Au, US$20/oz for Ag, US$3.50/lb for Cu, US$1.00/lb for Pb and US$1.50/lb for Zn and payable metal recoveries of 97% for Au, 85% for Ag, 85% Cu, 72% Pb and 92% Zn.*

6 GEOLOGIC SETTING, MINERALIZATION AND DEPOSIT MODEL

6.1 Regional Geology

The Johnson Tract Project (the Project) is hosted by the Talkeetna Formation of the Alaska Peninsular Terrane, a 1,000 – 2,500 m (3,280 – 8,202 ft.) thick assemblage of Early Jurassic, intermediate volcanic and volcaniclastic rocks (age based on the abundance of fossil megafauna, Detterman et al., 1996). Plutonic rocks of the Alaska-Aleutian Range Batholith which are characterized locally by quartz diorite, quartz monzonite and tonalite phases with U-Pb zircon ages of 183 – 164 Ma (Rioux et al., 2007) are thrust onto the western edge of the Talkeetna Formation. These intrusive rocks are interpreted to be the contemporaneous, plutonic equivalent of the adjacent Talkeetna–Formation, and together make up the Talkeetna Arc.

Within the Project area, the Talkeetna Formation and intrusive rocks to the west are divided by the north-south striking Bruin Bay fault (Figure 6-1), a regional, transpressional fault system which was likely active in Early Paleogene time (Betka et al., 2017), and may have been responsible for the unroofing of the Talkeetna Arc as early as the Middle-Late Jurassic (cf. Wartes et al., 2013). Most of the work on the Talkeetna Arc has focussed on the section exposed northeast of Anchorage, in the Chugach and Talkeetna mountains, where geochemical and isotopic analysis of intermediate to felsic plutonic rocks suggest an intra-oceanic island arc setting (Clift et al., 2005, Rioux et al., 2007) with little to no input of continental crust material. However, a lack of evidence for mid-ocean ridge lavas, and thermobarometry requiring crustal thicknesses in excess of 30 km (Hacker et al., 2008) suggest that the Talkeetna Arc was likely a 'mature' island arc. South and west of the Project area are Quaternary volcanics associated with the active Iliamna stratovolcano.

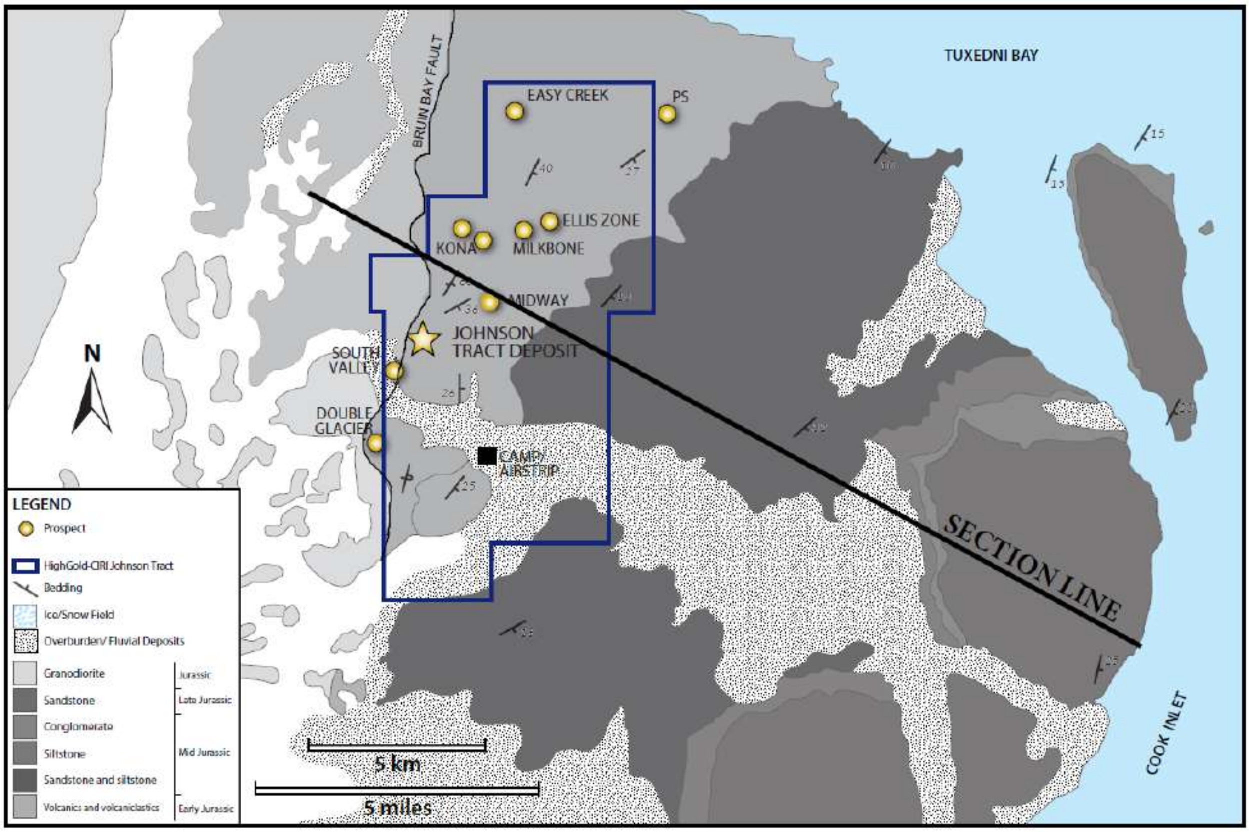


Figure 6-1 Regional Geology of the Johnson Tract Project

6.2 Local Geology – Johnson Tract Deposit Area

The Johnson Tract Deposit (the Deposit) mineralization is hosted within southeast dipping volcanic and volcaniclastic rocks of the early Jurassic Talkeetna Formation, overlain by middle to late Jurassic sedimentary rocks of the Tuxedni, Chinitna and Naknek formations (Figure 6-2). To the west of the Deposit, the regional west-dipping Bruin Bay Fault juxtaposes diorite to quartz monzonite intrusive rocks against Talkeetna formation host rocks Figure 6-3; Table 6-1). The main stratigraphic units associated with the Deposit are described in detail in the next section from oldest to youngest and shown in the stratigraphic column in Table 6-1. The Talkeetna Formation unit descriptions are from recent mapping and compilation by Proffett (2019, 2020) and the Project geologists (reference previous summary reports) as well as earlier work by Anaconda geologists (Steefel 1985 and 1987; Millholland and McClelland, 1985).

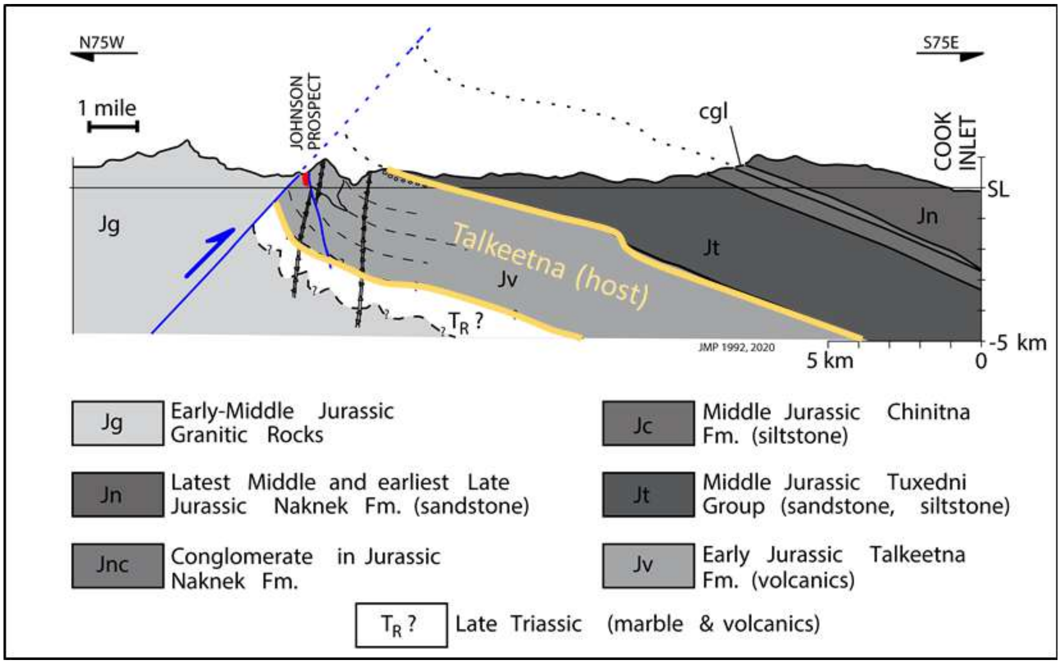


Figure 6-2 Schematic cross-section of the regional geology of Johnson Tract (Modified from Proffett, 2021)

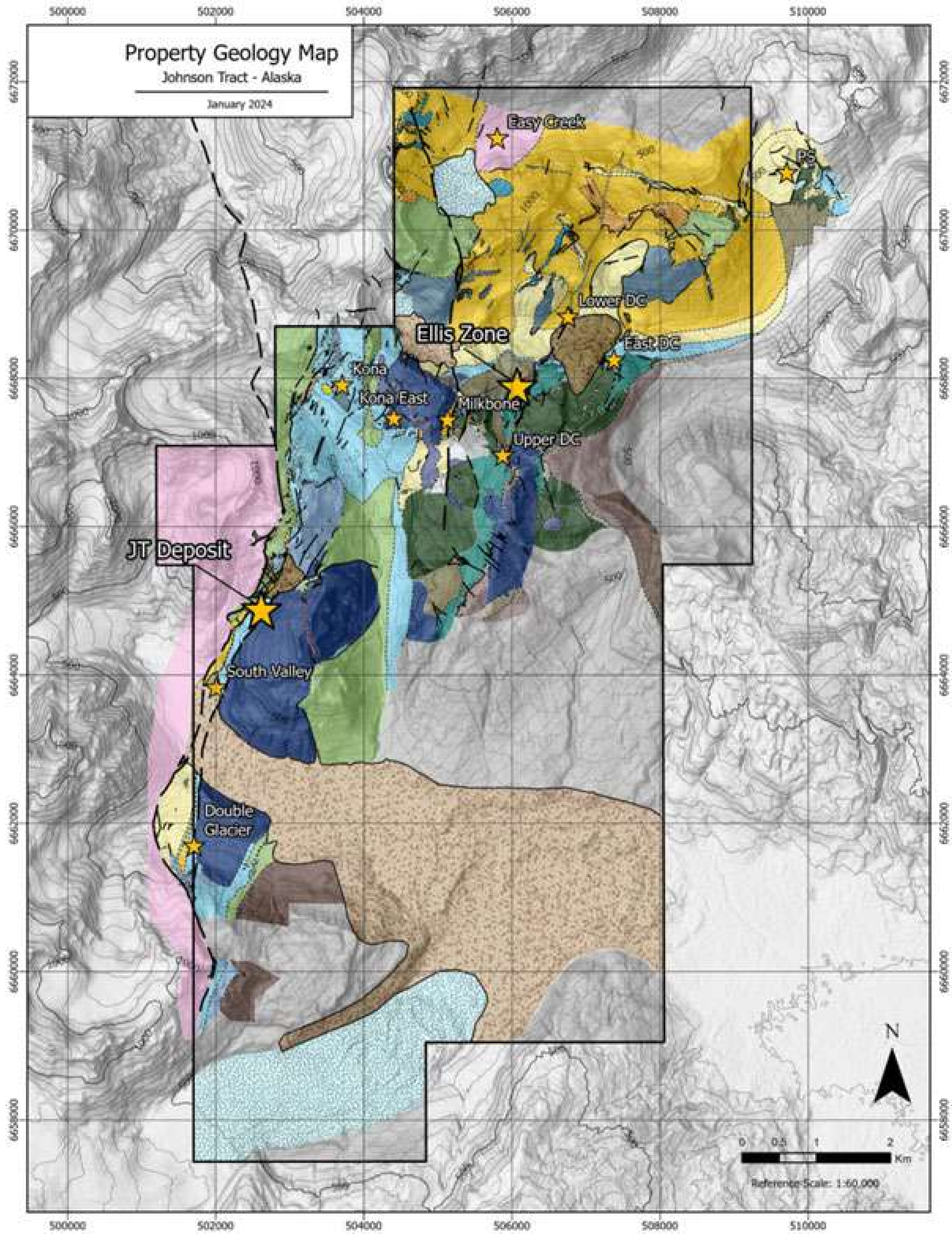


Figure 6-3 Geologic Map of the Johnson Tract Project Area

Table 6-1 Legend to Geological Map of the Johnson Tract Project

List of Map Units

Limited Mapping/Unmapped	
Landslide	
Quaternary Alluvium	
Ice / Snow	Ice fields/glaciers, permanent snow pack.
Tuxedni Group Sediments (tg)	Fossiliferous, light- to dark-gray and green marine graywacke, conglomerate, siltstone, and shale (Detterman and Hartsock, 1966)
Rhyolite Andesite Breccia (rabx)	Multi-coloured, heterolithic, poorly sorted breccia to sandstone. Clasts are angular to rounded and include flow banded rhyolite, porphyritic andesite, and rare granitic clasts in a sandy, feldspar crystal-rich and tuff matrix. Variably stratified from bedded sandstone to poorly sorted breccia and typified by intervals with up to 1 m clasts.
Dacite Dyke (ddk)	Small intrusive bodies of fine- to medium-grained, hornblend-phyric dacite that post-date mineralization. May be flow banded.
Andesite Dyke (adk)	Magnetic andesite dykes. Includes aphyric, pyroxene-, feldspar-, and hornblende-phyric dykes.
Rhyolite Dyke (rdk)	Rhyolite dyke minor quartz phenocrysts. Locally flow banded.
Breccia Dyke (bxdk)	Colourful heterolithic pebble dyke with subangular to subrounded clasts. Clasts include dacite QFP, massive andesite, tuffs, and rare granitic clasts.
Andesite Flow / Breccia (afbx)	Magnetic, variably feldspar-phyric andesite flows and breccias.
Andesite Volcaniclastics (axlt)	Variably lithic-, pumice-, and feldspar crystal-rich andesite tuffs with local well-bedded and cross-bedded sandstones and poorly to well-sorted conglomerates.
Dacite Flow / Breccia (dfbx)	Plagioclase-phyric dacite flows and breccia. Typically flow banded.
Dacite Volcaniclastics (dxlpt)	Variably lithic-, pumice-, and crystal-rich dacite tuffs. Contains local mudstone horizons with tube worm fossils Main host to mineralization at the main Johnson deposit.
Dacite Quartz-Feldspar Porphyry (Quartz-Poor) (dfp)	Porphyritic dacite intrusive with 15-30% feldspar phenocrysts and up to 5% quartz phenos. Massive to brecciated and columnar jointed. Cross-cuts quartz-rich Dacite QFP.
Dacite Quartz-Feldspar Porphyry (Quartz-Rich) (dqfp)	Porphyritic dacite with up to 10% quartz phenocrysts and common dark green dark xenoliths up to 30 cm. Dominantly massive but may be brecciated and columnar jointed.
Massive Dacite (Undifferentiated) (di)	Fine-grained, massive, undifferentiated dacite intrusive rock.
Basalt Volcaniclastics (blst)	Poorly to moderately well-sorted lithic scoriaceous basalt tuffs.
Basaltic Andesite Flow / Breccia (bfbx)	Scoracious pyroxene-phyric and feldspar±pyroxene-phyric massive to brecciate flows and pillowed flows.
Dark Fine-Grained Tuff (dfgt)	Dark grey, locally fossiliferous tuffaceous mudstone/siltstone. Common cm- scale bivalve fossils.
Quartz-Eye Dacite Volcaniclastic (qexlt)	Light grey, interfingering arkosic sandstones and polymict conglomerates with abundant large quartz-eyes in the matrix and common rounded clasts of Quartz Eye Porphyry (qep).
Quartz-Eye Porphyry (QEP)	Quartz- and feldspar-phyric intrusion with 5-15% distinctive round quartz phenocrysts up to 1 cm in diameter.
Rhyolite Volcaniclastics (rt)	Weakly bedded to mass very fine-grained rhyolite ash tuffs. Local centimeter-scale resitive nodules.
Massive Rhyolite (Undifferentiated) (rhy)	Fine-grained massive siliceous rhyolite.
Granitoid (grd)	Fine-grained diorite intruded by medium-grained granodiorite. Local biotite in the Easy Creek granodiorite.

Contacts

- Concealed,Major
- Inferred,Major
- Observed,Major

Faults

- Concealed, Major, Reverse
- Concealed, Major, Unknown
- Concealed, Minor, Reverse
- Concealed, Minor, Unknown
- Inferred, Major, Normal
- Inferred, Major, Reverse
- Inferred, Major, Unknown
- Inferred, Minor, Normal
- Inferred, Minor, Reverse
- Inferred, Minor, Unknown
- Observed, Major, Normal
- Observed, Major, Reverse
- Observed, Major, Unknown
- Observed, Minor, Unknown

Alteration

- **Quartz-Sericite-Pyrite**

6.3 Main Stratigraphic Units – Johnson Tract Deposit Area

Lower Andesite – Andesitic Lithic Tuff & Tuff Breccia

The stratigraphically lowest member of the Jurassic host rock package is dark grey to dark green andesitic tuff and volcanic breccia with interbedded volcanic sandstone. The unit includes the Terrazzo Tuff Breccia (TTB), one of two main marker units (Figure 6-4). It is a distinctive heterolithic fragmental unit with subangular, multi-coloured, mostly andesitic clasts in a fine-grained matrix. Clasts are typically 2 mm to 2 cm, although clasts greater than 10 cm are locally present (Westmin, 1994). The unit is normally graded, poorly bedded, and poorly sorted. Reverse grading is identified near the top of the unit. Unit thickness is poorly constrained, though up to 215 m (705 ft.) is exposed at surface.

Quartz-Eye Dacites

The white to gray and green quartz-eye dacite unit was historically referred to as "rhyolitic crystal tuffs and lithic tuffs". This unit consists of quartz and feldspar crystal-rich pumice and lithic lapilli tuff, sandstone, and conglomerate. An intrusive rock of similar composition occurs locally. The distinguishing feature for this unit regardless of texture is the presence of quartz-eyes.

A. Volcaniclastic rocks

The unit consists primarily of light-coloured lapilli tuffs interbedded with finer-grained tuffs and tuffaceous sandstones. The tuffs contain white pumice clasts within a finer grained matrix of the same composition. The pumice fragments can contain plagioclase and quartz phenocrysts up to a few millimeters in size. In places large quartz-eyes have weathered out, resembling rounded pebbles. Where present, this unit was referred to as the "quartz pebble conglomerate" (QPC).

B. Intrusive rocks

A quartz-eye porphyry intrusion of similar composition to the quartz-eye dacite tuff unit occurs west or down stratigraphy from the tuff unit.

Dark Fine-Grained Tuff (DFGT) (marker horizon)

Directly overlying the QPC unit is a dark gray to black mudstone to locally siltstone and sandstone referred to as the 'Dark Fine-Grained Tuff (DFGT)' unit (Figure 6-4). Soft-sediment deformation and carbonaceous worm burrows are common. Sulfides and graded bedding occur locally. This unit can be used as a marker horizon, though worm tubes are also observed in the overlying dacite volcaniclastic rocks.

Plagioclase-Phyric Dacites

Overlying the DFGT is a package of feldspar-phyric dacitic flows, breccias, intrusions, and volcaniclastics.

A. Dacitic volcaniclastic rocks

The majority of the known Deposit mineralization is hosted within a sequence of interbedded dacitic feldspar crystal-rich, pumice- and lithic-rich lapilli tuffs and tuffaceous sediments. At the Deposit this unit is approximately 150 m (492 ft.) thick. A few 1–2 m-thick tuffaceous siltstone intervals have worm tube structures and can be correlated between drillholes. These beds are historically referred to as the Worm Tube Tuff (WTT).

B. Dacitic Flows & Breccia

Exposed along the ridge to the northeast (900 m, 2,952 ft.) of the Deposit and stratigraphically overlying the dacitic volcaniclastics is a ~120 m (~395 ft.) thick massive to flow-banded coherent plagioclase-phyric dacite unit. Breccias are also present with subangular to angular blocks of similar composition to the flows and are interpreted as an autobreccia facies. Overlying and interlayered with the flows are breccias up to 70 m (230 ft.) thick. Above the breccias is a 30-meter (98 ft.) thick unit of pumice tuffs and tuffaceous sediments.

C. Dacitic Intrusive rocks

Five hundred meters north-northeast of the Deposit lies an irregular mass of intrusive dacite similar in composition to the dacites described above.

Upper Andesite – Andesite-Dacite Breccia and Tuff-Breccia

Overlying the plagioclase-phyric dacites is a sequence of andesitic and dacitic volcanic breccias. This unit is mainly a massive to poorly bedded, unsorted lithic tuff with abundant subangular dacitic to andesitic clasts in a dark green andesitic matrix. Dacite clasts have 5–20% feldspar phenocrysts and closely resemble the underlying dacite units. In places, fragments of jasper and more silicic volcanic rock are present. Locally a few black wood fragments are observed, suggesting a subaerial origin. No mineralization or significant alteration has been recorded in the Upper Andesite unit (Steefel, 1987).

Dacite Quartz-Feldspar Porphyry Intrusion

Located immediately southeast of the Deposit is a one-kilometer thick dacite quartz-feldspar porphyry unit intruding the feldspar-phyric dacite sequence at low angles to bedding. The unit extends over a two-kilometer strike length trending northeast-southwest and is characterized by 10–15%, <4 mm subhedral plagioclase phenocrysts, 5–10% <4mm subhedral to rounded quartz phenocrysts, <5% mafic phenocrysts, local minor fine-grained magnetite, and common mafic xenoliths up to 20 cm. The upper and lower contacts with the feldspar-phyric dacite sequence are at low angles to bedding. The unit is often brecciated near the upper contact. The same unit has been recorded to the northeast in Kona Creek and to the south in a low ridge between the Johnson River and the Double Glacier prospect. A quartz-poor unit of similar composition and texture occurs in the saddle NE of the Deposit, in contact with the main intrusion and with the Upper Andesite package.

Andesite Dykes

Along the ridge to the north of the Deposit the plagioclase-phyric dacite unit is cut by a few small andesitic dykes. The dykes are very fine-grained, dark brown to dark grey with plagioclase phenocrysts, and in places contain what appear to be amygdules filled with chlorite and silica.

Granitic Rocks

A. Diorite

A few hundred meters north of the Deposit a grey fine-grained hornblende diorite is exposed along the northwest limit of the detailed mapping area.

B. Granodiorite

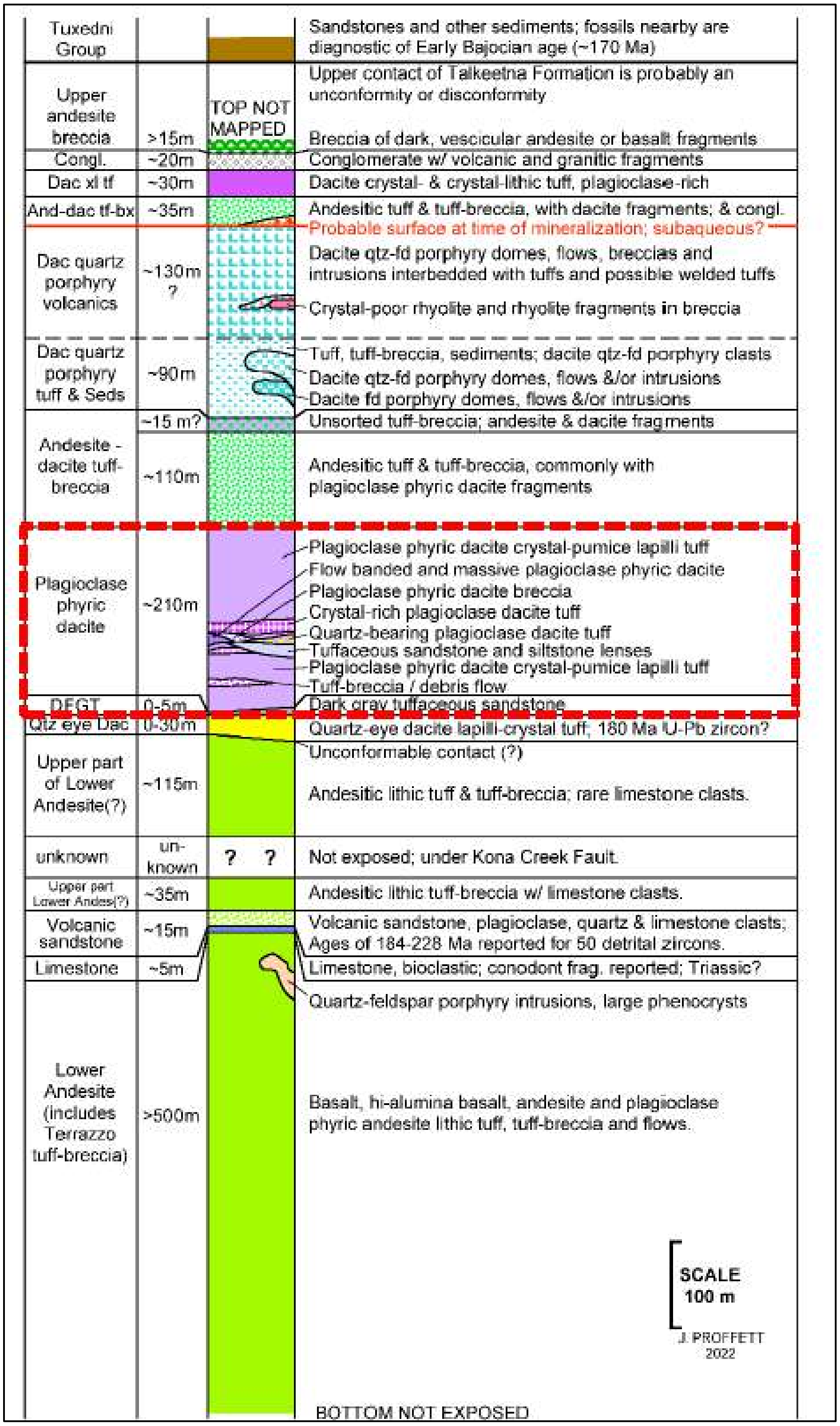
East of the diorite unit and adjacent to the Bruin Bay fault is a coarse-grained, biotite-hornblende granodiorite. The unit contains xenoliths of the fine-grained diorite. Fifteen kilometers north of the Johnson Tract Deposit, a concordant age of 170 Ma has been recorded (Detterman et al., 1966).

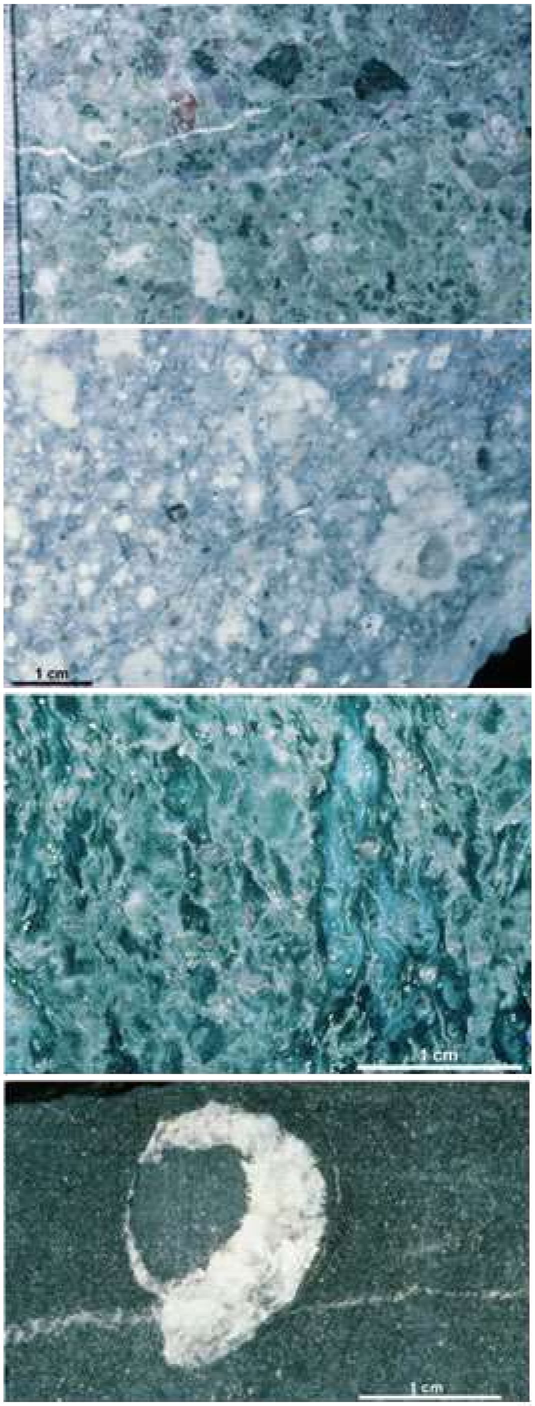
Breccia Dykes

A north-south trending breccia dyke cutting the dacite quartz porphyry has been recorded ranging from 20 to 50 m (65 to 164 ft.) wide. The dyke is composed of fine-grained chloritic material similar to the andesite-dacite tuff breccia and includes breccia fragments of dacite quartz porphyry and the coarse-grained granodiorite. In places, the breccia dyke is altered with pyrite and silicification. Some fragments of granodiorite are clay altered with limonite, while other fragments of granodiorite only show altered rims, indicating mineralization likely occurred concurrently to the formation of the breccia dyke unit.

All units described in this section are shown below in Table 6-2.

Table 6-2 Local Stratigraphy (From Proffett, 2022) with units known to host mineralization at the Deposit highlighted in red





A – “Terrazzo” Tuff Breccia (TTB) from lower andesitic unit

B – Dacite quartz-eye lapilli tuff (DLT)

C – Dacite pumice lapilli tuff (DLT), host to mineralization

D – Dark fine-grained tuff (DFGT) with fossil replaced by anhydrite

Figure 6-4 Key stratigraphic units at the Johnson Tract Deposit

6.4 Structure

Recent work by the USGS has interpreted the dominant deformation in the Johnson Tract Project area is the result of southeast directed sinistral transpression resulting in open to gentle folds and oblique left-lateral reverse and left-lateral strike-slip faults (Betka et al., 2017). The major structure in the area is the Bruin Bay fault zone (BBFZ). Most other faults in the Project area are strike-slip faults related to the BBFZ and are divided into two kinematically distinct populations, one includes strike-slip and reverser faults that record sub-horizontal southeast trending shortening, and a second group includes strike-slip faults that are compatible with sub-horizontal northeast trending shortening and southeast trending extension (Betka et al., 2017).

6.4.1 Faulting

Bruin Bay Fault Zone (BBFZ)

The Bruin Bay fault zone is a major regional fault extending over 450 kilometers (280 miles) along the eastern flank of the Aleutian Range, separating the Iliamna and Chignik subterranes of the Peninsular terrane, and defining the northwest tectonic boundary of the Cook Inlet forearc basin (Nokleberg et al., 1994; Betka et al., 2017). South of the Project area, the fault juxtaposes the upper member of the Talkeetna formation in the hanging wall against the lower member of the Naknek formation in the footwall and is estimated to have up to three km of offset (Detterman et al., 1966; Wartes et al., 2016; Betka et al., 2017).

At Johnson Tract, the BBFZ is west-dipping and exposed 300 m (984 ft.) to the west of the Deposit, where Jurassic intrusive rocks in the hanging wall are in contact with Lower Jurassic lower Talkeetna formation host rocks (Figure 6-5). Mapping in 2019 covered 600 m (1,969 ft.) along the Bruin Bay fault zone. The prominent north-trending limonite-pyrite alteration zone crosses the fault, suggesting that the majority of displacement on the BBFZ occurred prior to at least some local alteration. Previous work on the composition of plutonic clasts and detrital zircons in the Late Jurassic Naknek Formation indicates a Talkeetna Arc source (Wartes et al., 2013). Granitic boulders, apparently from west of the BBFZ, occur in the uppermost Talkeetna Formation in the vicinity of the Deposit (Proffett 2020), suggesting that reverse motion on the BBFZ initiated as early as the Early – Middle Jurassic. Other recent work, indicating oblique left-lateral reverse to left-lateral strike slip motion on the BBFZ, concluded that most displacement occurred significantly later, in the Paleocene to Eocene (Betka et al., 2017).

Dacite Fault

The Dacite Fault is an important, 5 to 10 m (16 to 32 ft.) thick, steeply southeast-dipping brittle and gougy fault which bounds and likely offsets the southeast side of the Johnson Tract Deposit. Locally, the Dacite Fault is pyritic, indicating some stages of the fault developed during local mineralization. At surface, the Dacite fault dips steeply and juxtaposes the strongly altered and mineralized core of the Deposit with relatively unaltered dacite quartz-feldspar porphyry. At depth, drilling suggests that the Dacite Fault splits into several distinct splays, with 50 to 100 m (164 to 328 ft.) or more of down-dropping to the east (i.e. normal faulting) observed on the west-most splays based on offsets to key stratigraphic units such as the dark fine-grained tuff and quartz-eye dacite volcaniclastic rocks. The sense and magnitude of lateral displacement is unknown. Work is ongoing by Contango Ore to resolve the displacement as part of its exploration for the fault offset continuation of the Johnson Tract Deposit.

Cuervo Fault

The Cuervo Fault is a steeply west-dipping, northeast trending, left-lateral strike-slip fault exposed along the southern end of mineralized outcrop at the Deposit. Over a ten-meter width (33 ft.), the fault consists of several branches 10 to 100 centimeters wide, which narrow to the north along trend. Fault gouge is composed of black to dark green chlorite with pyrite and locally sphalerite and chalcopyrite, indicating deformation occurred during mineralization. Slickensides generally plunge gently southwest. Displacement is thought to be between 50 to 80 m (164 to 262 ft.). The fault pinches out or jogs at depth. Multiple fault strands are identified in drill core in the subsurface. Originally modeled as sharp hanging wall to the Deposit, recent drilling in 2019 to 2021 has identified mineralization on both sides of the fault.

HW and FW Saddle Faults

Approximately 900 m (2,952 ft.) northeast of the Deposit, two fault structures are exposed in the saddle of the ridgeline. These two faults are referred to as the **hanging wall Saddle Fault** and the **footwall Saddle Fault**. Along the ridge, both faults dip approximately 65 degrees to the northwest. Historic drilling northeast of the Deposit indicates these faults could flatten at depth to as much as 40 degrees. Interpretation of 2020 drilling suggests reverse thrusting on the Saddle faults, with a combined displacement of between 150 and 300 m (492 to 984 ft.); they also appear to truncate the earlier steeply dipping Dacite Fault. The Saddle Faults are similar in orientation to the regional BBFZ and show a similar sense of displacement. Movement on the BBFZ has been interpreted as oblique, left-lateral reverse (Betka et al., 2017) and if the Saddle faults are synthetic to the BBFZ, some left-lateral movement is also likely.

Local Cross Faults

Northwest to west-northwest striking cross faults are noted by historic workers, displacing the Dacite, Cuervo, and other northeast-striking faults. One cross fault with seven m (23 ft.) of apparent displacement was confirmed during mapping by Proffett (2019); however detailed UAV imagery to the southwest of the Deposit and recent mapping indicate that several other cross faults could be present. These cross-faults have similar orientation to right-lateral strike slip faults noted in the area (Betka et al., 2017).

Kona Creek Fault

The “Kona Creek Fault”, originally mapped by Anaconda in the early 1980’s, is a steeply west-dipping, fault crossing the western part of the Kona Prospect and is exposed on both sides of Kona Creek and at a site 200 m (656 ft.) south of Kona Creek (Proffett, 2021). In all these places, an eastern strand of the Kona Creek Fault forms the contact between intensely altered and pyritized rocks to the east and non-pyritized rocks to the west. This strand consists of a few cm of fault clay and up to a meter or so of fractured rock; it does not appear to be a major fault on the scale of the Bruin Bay Fault, and the rocks on both sides appear to be part of the Lower andesite unit, but there was clearly enough displacement along it to truncate the large zone of alteration and mineralization to the east of it. A second strand occurs a few meters to the west. Surface mapping shows that the main Quartz Eye Dacite Tuff unit is apparently truncated by the Kona Creek Fault under valley fill within 200 m (656 ft.) south of Kona Creek on the east side of the Fault. The Kona Creek Fault may merge with the Bruin Bay Fault based on its projection to the south but has not been traced to the north beyond the property boundary.

Milkbone Fault

The Milkbone Fault is a six-kilometer-long (3.7 mi) north-south fault that may represent an important regional gold-bearing structure in the northern portion of the Johnson Tract Project. It is separate and distinct from the main Deposit area located several kilometers to the southwest and it and related subsidiary faults appear to have an important control on mineralization. The Milkbone Fault dips steeply to the west and, in the Milkbone Prospect area, it places fresh andesite on the east side against pyritized dacitic volcaniclastic rocks on the west side. The Milkbone Fault can be traced four kilometers northwards to the Easy Creek Prospect.

Rizzo Fault

The Rizzo Fault is a north-northeast trending, west-dipping fault immediately west of the Middle Difficult Creek prospect area in a prominent gully. It has been intersected in holes DC21-013, DC21-015, DC21-017, and is observed on surface in the creek. It appears largely as a ~1m (~3.5 ft.) gougy, pale clay/sericite altered strongly foliated fault zone with minor anhydrite veining, but with little pyrite. No other mineralization is observed related to this fault and the fault may offset mineralization.

Central Fault

The Central Fault is north-northeast-trending, steeply west-dipping fault located east of the Middle Difficult Creek prospect within a creek gully and juxtaposes unaltered andesite to the east against QSP-altered rocks to the west. This fault has been intersected in holes DC21-018, DC21-022, and DC21-026, where they intersected sericitic and pyritic gouge up to 5 m (16 ft.) true width and altered wall rock. It extends southwards in the Upper Difficult prospect.

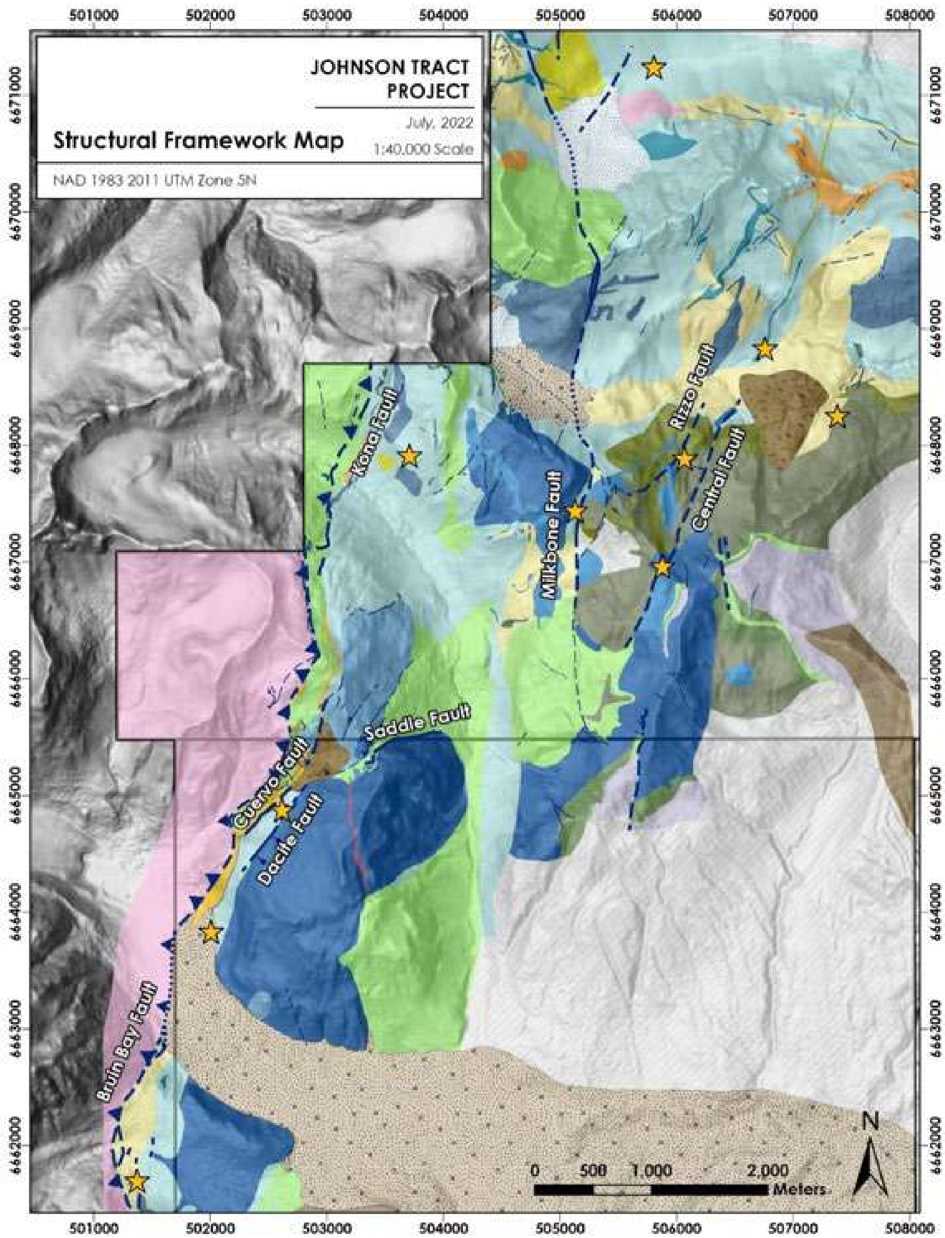


Figure 6-5 Geology Map of the Johnson Tract Project with Major Faults

6.4.2 Folding and Tilting

East of the Bruin Bay fault, the volcanic and sedimentary rocks of the Talkeetna Formation are tilted to the east. Drag along the Bruin Bay fault appears to steepen and overturn the Talkeetna Formation within several hundred meters of the fault. The dip of the Cuervo fault is known to flatten out by ten degrees at depth, while the Dacite fault appears to show no change. Proffett (2019) interprets this to indicate early strike-slip faulting along Cuervo and Dacite faults could have occurred during reverse faulting.

6.5 Alteration

Proffett (2019) summarized the concentric alteration and mineralized zones recorded at Johnson Tract. This section provides a summary starting with the outermost of the four zones and provides several visual examples (Figure 6-6 and Figure 6-7).

Outer Sericite Zone

A broad irregular zone that contains up to a few percent anhydrite and pyrite, with sericite, chlorite, and clay alteration of wallrock. Although most mineralization is recorded in the plagioclase-phyric dacite volcaniclastic rock, the Outer Sericite Zone alteration is seen in rock units stratigraphically above and below.

Anhydrite Zone

Most notable surrounding the Deposit, zones of anhydrite-chlorite-pyrite alteration, commonly exceeding 20 percent anhydrite, are recorded. Anhydrite forms nodules with interstitial chlorite-pyrite which is locally replaced by sericite or clays. Small irregular veins of anhydrite are common throughout. Minor sphalerite is present higher up in some anhydrite-altered zones, either disseminated or as sparse anhydrite-sphalerite veins. Weakly anomalous gold is also known to occur within anhydrite-altered zones, proximal to the inner silicified zone.

Silicified Zone

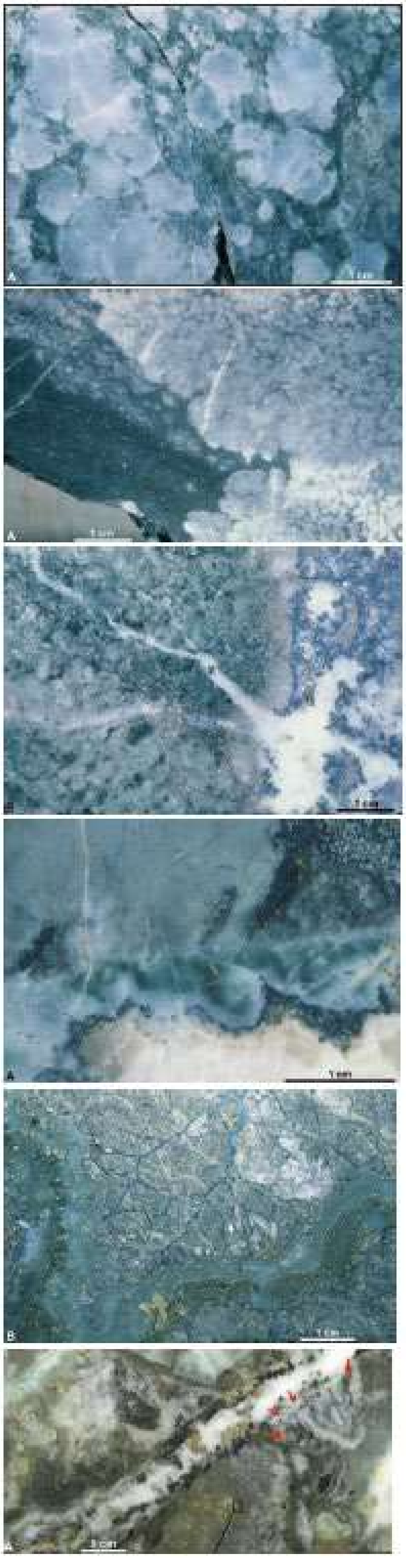
Within the Anhydrite Zone, a northeast plunging, tabular body of strongly silicified tuffs hosts most of the mineralization. This zone is defined by abundant quartz-sulfide veining, and the replacement of wall rocks with fine-grained quartz. Relict nodular texture is observed locally, replaced by silica, suggesting that silicification may have overprinted earlier anhydrite alteration. Strong silicification and sericite-alteration is also closely associated with the more copper-rich ‘footwall’ zone, suggesting that this may represent a feeder to the overlying gold and zinc rich mineralization. Silicified rocks commonly contain >80 wt.% SiO_2, compared to ~65 wt.% SiO_2 in unaltered dacite tuffs. The silicified zone also contains abundant disseminated pyrite (1-5%), anomalous to high-grade gold throughout, and elevated base metals, commonly outboard of the main Au-rich mineralization.

Veins & Breccia Veins

Several vein and breccia vein types crosscut the Silicified Zone:

- Quartz-pyrite-sphalerite +/- chalcopyrite veins with no obvious open-space textures Breccia veins with open-space textures (coliform)
    - o high-grade gold is common
    - o appear to dip steeply to west – northwest

- White quartz, dark chlorite, coarse-grained chalcopyrite, pyrite +/- sphalerite
    - o appear to cross-cut open-spaced breccia veins
    - o high-grade gold is found in the walls, rarely recorded in the veins



A – Nodular Anhydrite replacing plagioclase-phyric dacite lapilli tuff

B – Silicification replacing Nodular Anhydrite Alteration

C – Silicified Dacite Tuff with relict anhydrite cut by Qtz-Py-Sph Veining

D – Qtz Veins in Silicfied Dacite Tuff. Early Sph-Py-Qtz veins cut by open-space filled coliform veining with Qtz-Sph-Py and late anhydrite

E – Coliform Layers of Coarse Sph followed by Qtz-Sph-Veining

F – Silicified Breccia cut by late Qtz-Chl-Py-Cpy-Vein

Figure 6-6 Examples of the typical alteration assemblages and styles found at the Johnson Tract Deposit

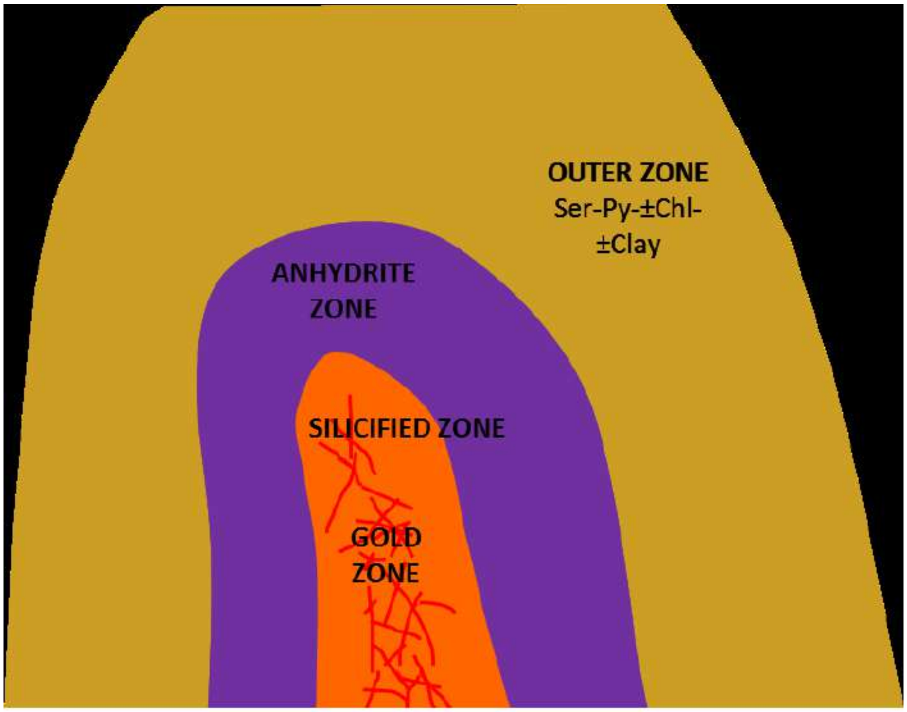


Figure 6-7 Johnson Tract Deposit Zoned Alteration Model

6.6 Mineralization

Mineralization at the Johnson Tract Deposit forms a steeply southeast dipping, tabular silicified body that contains a stockwork of quartz-sulfide veinlets and brecciation, cutting through and surrounded by a widespread zone of anhydrite alteration (Proffett, 1993). Drilling has defined silicification and mineralization from surface to a vertical depth of approximately 350 m (1,150 ft.), over a total strike length in excess of 600 m (1,970 ft.), and to a maximum true width of 55 m (180 ft.). The main body of mineralization is bound on the east by the southeast dipping Dacite fault (Figure 6-8).

The Deposit consists of a complex stockwork system of high-angle, 1-10 cm wide veins and breccia zones containing quartz, sphalerite, chalcopyrite, galena, anyhydrite, barite, Fe chlorite and native gold (Steefel, 1987). In addition to veins and diffuse breccias, mineralization is also characterized by massive structureless intergrowths of quartz and sulfides, commonly with very coarse-grained sulfide mineralogy. Veins show characteristics associated with epithermal styles of mineralization. Open-space fill texture is common and breccias consist of subrounded fragments hosted within a sulfide-silica matrix.

Early and relatively minor base metal mineralization (sphalerite) formed with the pervasive anhydrite-chlorite-sericite alteration. Later base (sphalerite-galena-chalcopyrite) and precious metal mineralization formed over several mineralizing events within the silicified stockwork vein zone. The genetic and temporal relationship between base metal deposition and precious metal deposition is not well understood (Rockingham, 1993). Re-Os dating of a bulk-sulfide separate, containing both chalcopyrite and pyrite from the footwall zone produced an age of 186 ± 6Ma for mineralization. This suggests that mineralization was contemporaneous with Talkeetna Arc volcanism and the Deposition of Talkeetna Formation host rocks (earliest Jurassic, Detterman et al. 1996), and is consistent with the shallow sub-seafloor setting for mineralization proposed by Steefel (1987).

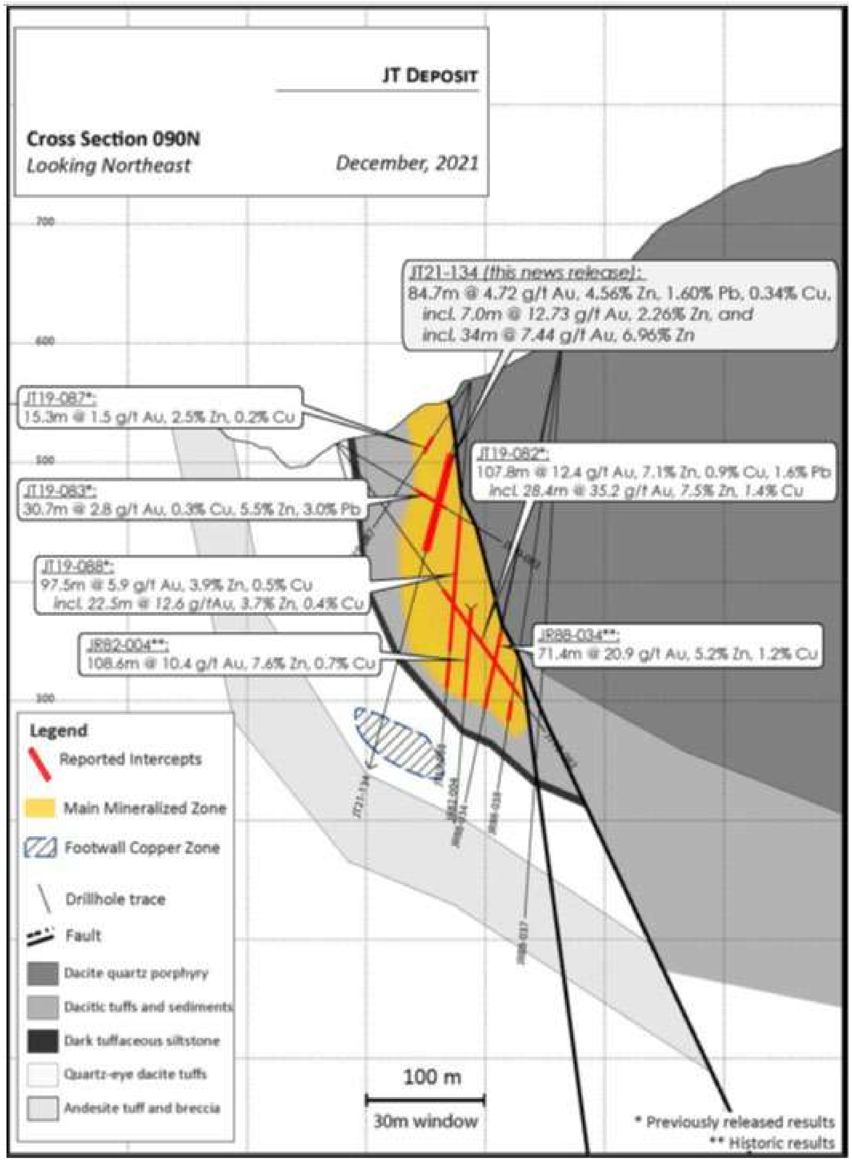


Figure 6-8 Cross-Section of the Deposit showing Main Mineralized Zones with Significant Drill Intersections

6.7 Hydrogeology

6.7.1 Hydrogeological Characterization

Hydrogeological characterization along the proposed adit was carried out by Piteau Associates and documented in a full report with supporting appendices (Piteau, 2023a). As taken from this report, the following work was carried out:

- *Three (3) boreholes were completed as Open Standpipe Piezometers (OSPs) with the purpose of collecting groundwater samples and monitoring groundwater levels.*
- *Three (3) boreholes were completed as grouted multi-level vibrating wire piezometers (VWPs) with the purpose of monitoring groundwater levels and groundwater gradients.*
- *A suite of hydraulic tests including packer and injection-recovery tests, were performed at multiple intervals within each of the boreholes.*
- *Groundwater samples were collected from the OSPs on three separate events to support water quality characterization.*

SRK is not aware of any additional hydrogeological characterization work to date on the site.

17.2.3 Hydrogeological Conditions

Data from the OSPs and VWPs has been used to determine the piezometric levels along the proposed adit, as well as look at water table variability to assess potential for recharge to the system. These data were used by Piteau (2023a) and by SRK to calculate estimated groundwater inflow rates to the mine as it develops over time, and final inflows at the end of mine (EOM).

Hydraulic conductivity data were obtained during the drilling program by means of packer and injection-recovery tests performed at multiple intervals within each of the boreholes in the 2023 program.

Piezometric data indicates that the Dacite Fault is impeding groundwater flow down the slope, with a distinct change in water levels across the fault measured in GT23-004 (Figure 6-9. Data from the other holes indicate a reasonably hydrostatic system along the adit, generally mimicking topography (Figure 6-10).

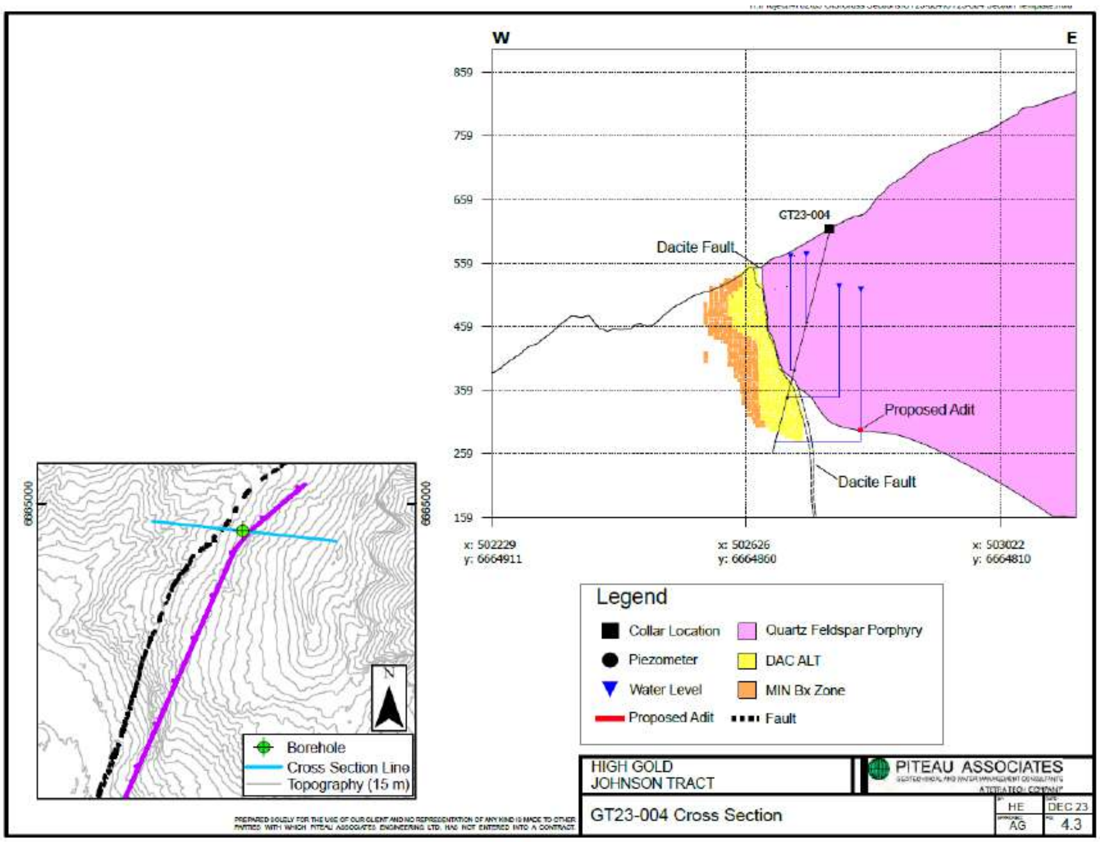


Figure 6-9 Piezometric Data from GT23-004 (Source: Piteau, 2023a)

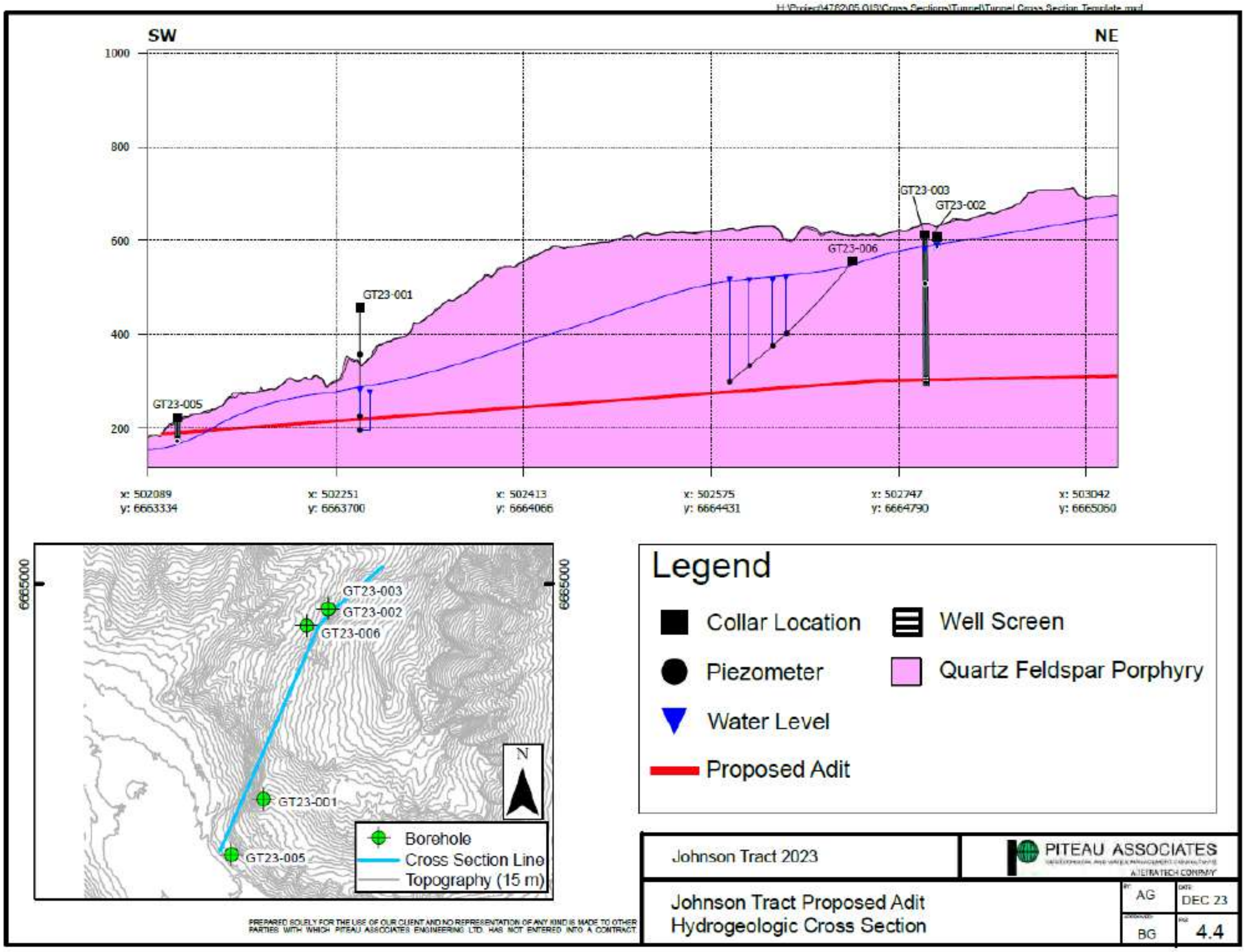


Figure 6-10   Hydrogeological cross section along Adit (Source: Piteau 2023a)

Hydrographs from the holes equipped with VWPs (GT23-001, -002, -004, and -006) indicate that the shallower sensors react quickly to precipitation events (Figure 6-11), which was interpreted to correlate to a high infiltration rate in the shallower rock mass. This will have implications on underground water inflow as rain and snow melt events will permeate into the bedrock and cause seasonal and event driven increases in inflow during operations.

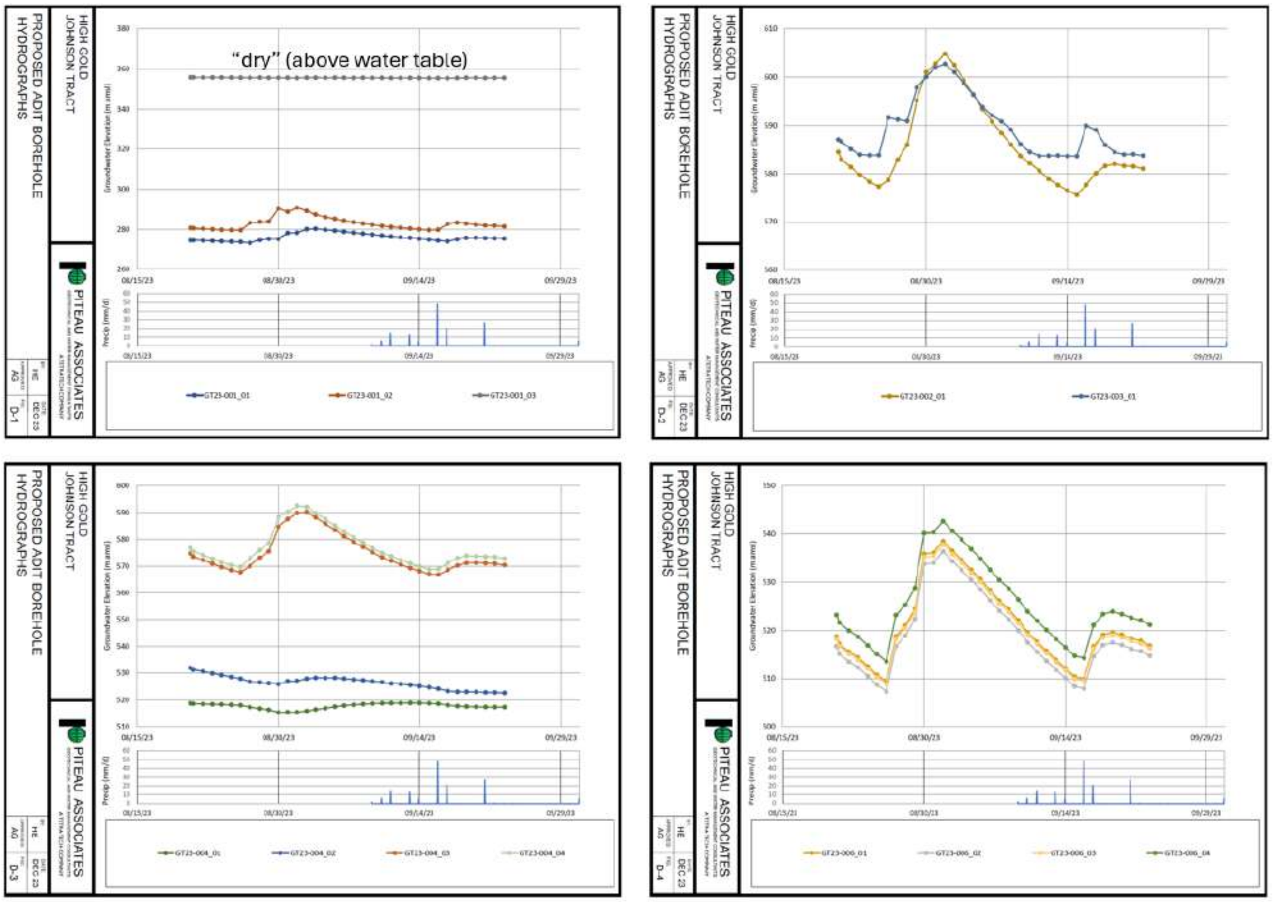


Figure 6-11 Hydrographs for VWPs equipped drill holes (Source: compiled from Piteau 2023a). Note: VWP #1 deepest in series, with ascending sensors higher ID number

17.2.3 Groundwater Quality

Groundwater quality monitoring has been carried out at the site as part of the 2023 hydrogeology program. Samples were collected from standpipes GT23-002 and -003. It was found that the screen for GT23-005 was above the water table, so no samples were possible.

Samples were collected in August and October 2023 using dedicated QED Micropurge groundwater sampling systems. Each standpipe was developed prior to collection of initial groundwater samples for 24 hours at a low flow rate of approximately 0.2 Usgpm. Prior to sampling in August and October, each standpipe was also purged for approximately 15 minutes while monitoring field parameters, including depth to water, pH, temperature, electrical conductivity (EC) and oxidation-reduction potential (ORP) on 5-minute intervals. Samples were collected once field parameters stabilized and collected in pre-preserved (as appropriate for each suite of analyses) laboratory-provided sample containers. The containers were labeled and placed in coolers on ice pending delivery to an analytical laboratory.

The groundwater samples were delivered to SGS in Anchorage, Alaska, an Alaska-certified analytical laboratory. The initial sample from each location was tested for the following suites of analytes:

- Major ions and general chemistry parameters

- Dissolved metals
- Total recoverable metals

The analyses were conducted using appropriate methods for each suite as noted on the laboratory analytical reports.

In SRK's opinion, this sampling methodology, sample collection, laboratory analysis, and use of lab duplicates meet industry standards for groundwater quality sampling.

Water quality results were reported to show that the groundwater chemistry is generally of very good quality and is not significantly dissimilar to the quality of the nearby unnamed spring and Ore Creek (USGS, 2003). While the results indicate concentrations of antimony, iron and zinc are elevated above water quality standards, this is not unusual as groundwater tends to have higher dissolved constituents due to the residence time within the rockmass. As previously noted in the report, the water quality could be worse in the main mineralized zone around the ore body and should be assessed in the next phase of work.

6.8 Deposit Model

Previous operators have suggested a range of potential deposit models for the Johnson Tract Deposit, from feeder zone beneath a sea-floor Volcanogenic Massive Sulfide deposit (VMS), to Epithermal within coeval volcanic stratigraphy, to the possibility of mineralization being significantly younger than the host volcanic rocks and instead related to regional intrusive activity and/or structures (Proffett, 1993).

VMS-like aspects include submarine volcanic host rocks, widespread and crudely stratabound anhydrite alteration similar to some Kuroko-type VMS, and strong base metal grades coincident with gold mineralization, whereas deposit morphology at the Deposit, consisting of a quartz-sulfide stockwork and breccia body, and vein textures are more consistent with those found in epithermal-type deposits.

A description and genetic model for the Deposit is presented in Economic Geology by Carl Steefel (1987). In it, Johnson is described as "an unusually well-preserved Jurassic example of gold-rich sea-floor mineralization accompanied by extensive anhydrite". Steefel argues that the discordant stockwork bodies formed contemporaneously with volcanism and just below the seafloor. Initial precipitation of anhydrite was followed by large volumes of silica, which caused the hydrothermal system to become sealed to cold seawater, allowing precipitation from unmixed metal-bearing fluids in late veins and hydrothermal breccias (Figure 6-12). Crosscutting relationships indicate that the quartz-sulfide mineralization transgressed over the earlier nodular anhydrite mineralization.

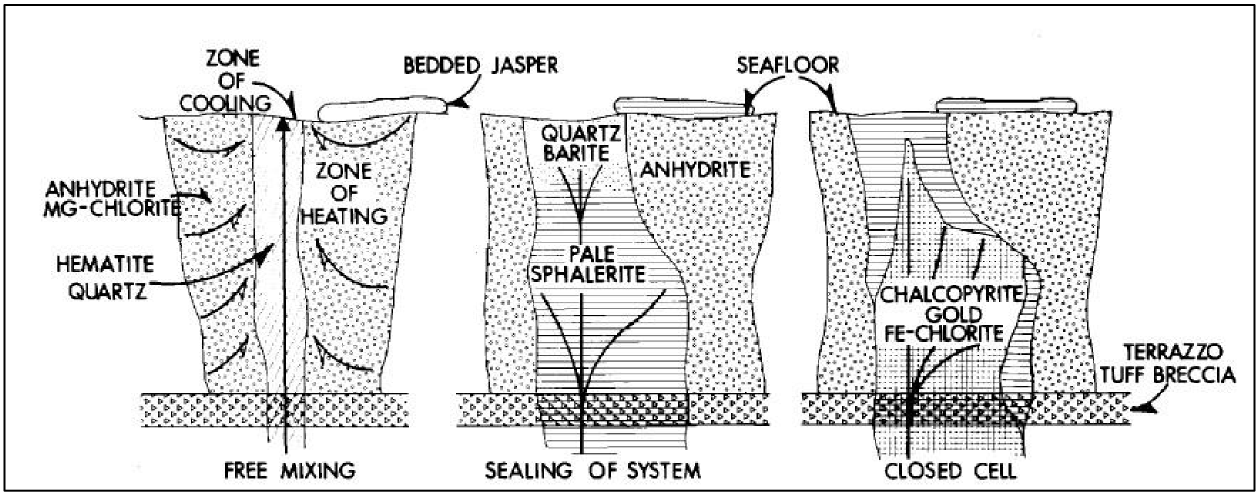


Figure 6-12 Genetic model of the hydrothermal system at the Johnson Tract Deposit from Steefel (1087)

Unlike typical Kuroko-type VMS, the Deposit mineralization appears to be sub-seafloor with no development of stratiform massive sulfide lenses. A note from Proffett (1993) mentions fossilized wood has been mapped above the ore horizon and suggests the volcanics just above the stockwork zone erupted on land, further supporting a link to more of an epithermal type deposit. Further review and comparison of the epithermal type model and the key characteristics of the Deposit suggests a likeness to the intermediate sulfidation model as described by Wang et al., 2019 (Figure 6-13).

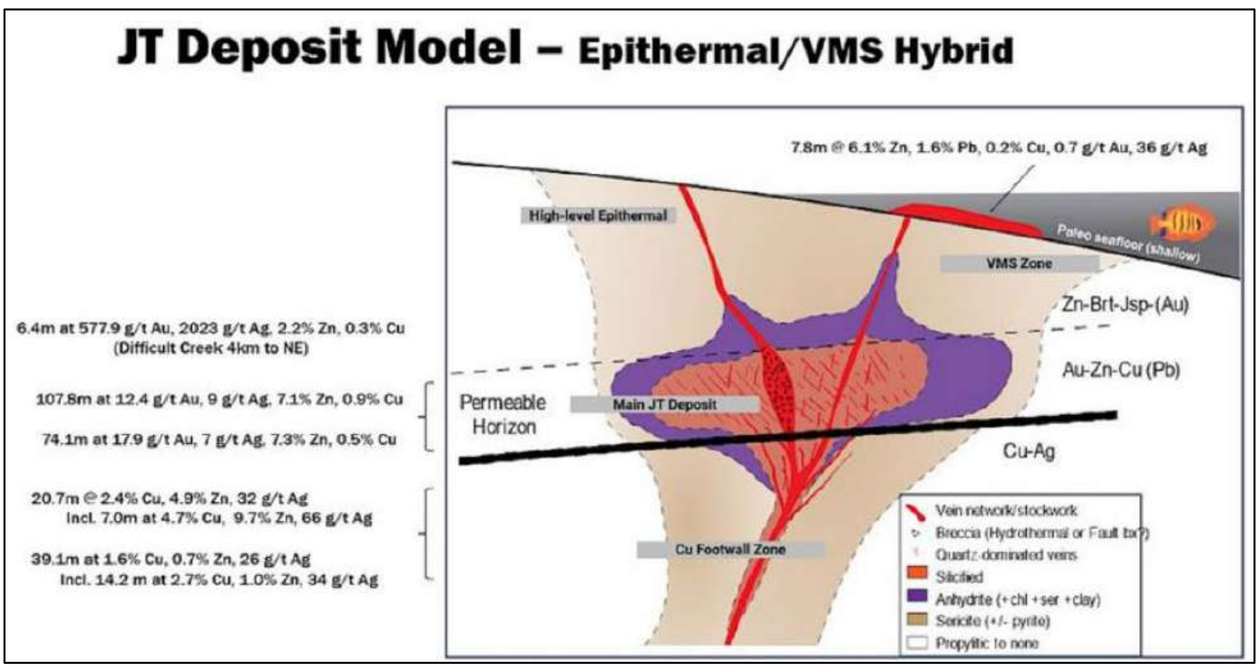


Figure 6-13 Johnson Tract Deposit Model -Epithermal/VMS Hybrid

One important aspect of the appropriate genetic model to follow is the metallurgy of the Deposit. Un-metamorphosed VMS deposits typically have very fine grained and inter-grown sulfide mineral species requiring very fine grinding to separate the different metal bearing minerals. That is not at all the case at Johnson Tract where relatively course sulfides characterize the sulfide mineralogy indicating a deeper or more porphyry-related model may be at play. The fact that the Deposit is a polymetallic breccia also suggests a porphyry related origin as does the existence of other known porphyry occurrences in the area such as the Easy Creek target. Recent studies in active sub-marine hydrothermal systems in the Kermadec Arc suggest a strong linkage between hot porphyry related fluids and cooler VMS systems as depicted in Figure 6-14. It is likely the Johnson Tract model of formation holds many similarities to these active systems as discussed by de Ronde, C.E.J., et al., 2011, Submarine hydrothermal activity and gold-rich mineralization at Brothers volcano, Kermadec arc, New Zealand: Mineralium Deposita, v. 46, p.541–584, DOI 10.1007/s00126-011-0345-8; and de Ronde, C.E.J., et al., 2014, The Anatomy of a Buried Submarine Hydrothermal System, Clark Volcano, Kermadec Arc, New Zealand: 2014 Society of Economic Geologists, Inc. Economic Geology, v. 109, pp. 2261-2292.

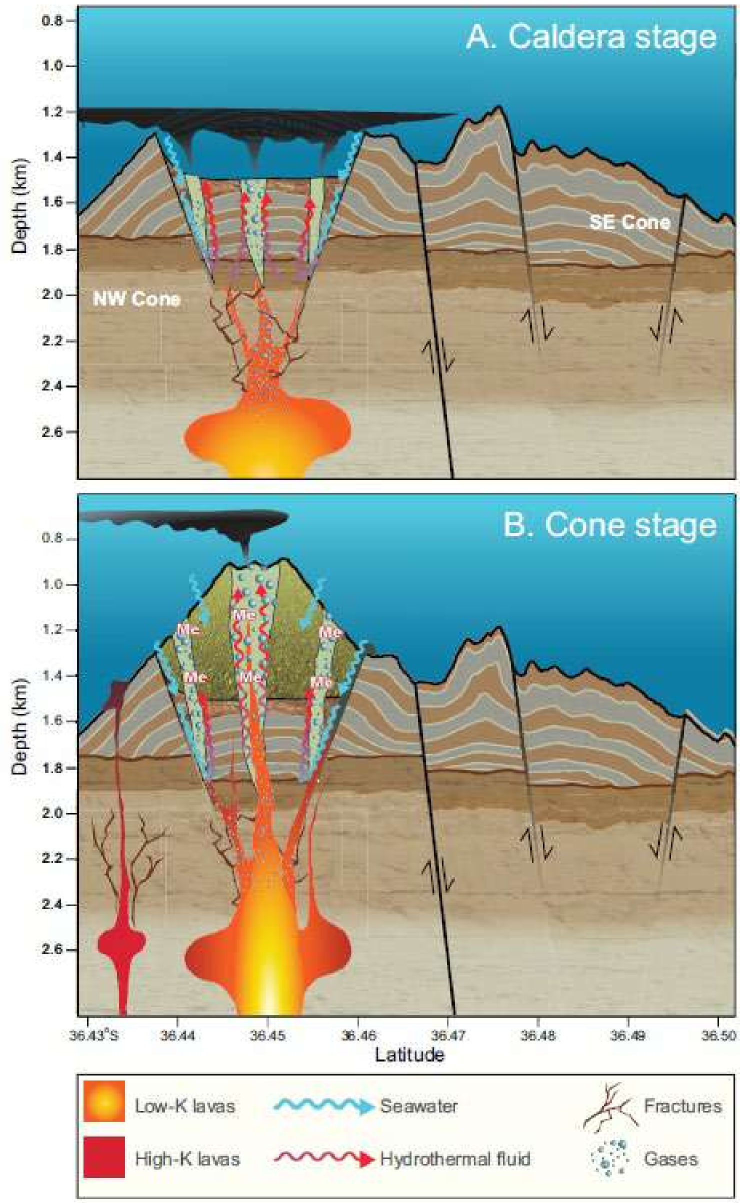


Figure 6-14 from de Ronde, C.E.J., et al., 2014 showing two distinct stages of development for a volcanic edifice pre and post caldera formation along with the interaction of porphyry related hydrothermal fluids and seawater

7 EXPLORATION

The Johnson Tract Project (the Project) was acquired by Contango Ore in July 2024 through its acquisition of HighGold Mining Inc. (HGM) and HGM's US subsidiary, J T Mining, Inc. (J T Mining). From July to October 2024, Contango Ore executed its first exploration and drill program on the property.

The 2024 exploration program drilled approximately 3,000 m (9,842 ft.) in 18 holes to infill the upper one-third of the near vertical resource and three holes drilled for hydrogeological testing and monitoring to characterize the overall hydrology and water quality around the Johnson Tract Deposit (the Deposit). A number of the holes are being used for further metallurgical testing and geometallurgical characterization. Contango Ore continued advancing field studies in 2024 to support permitting and engineering of an exploration drift to access the deeper, high-grade portion of the Deposit for infill and exploration drilling.

7.1 Surface Exploration

The 2024 surface exploration program focused on enhancing the geologic understanding around Upper DC, the main Deposit area, and Kona Valley near the Midway target through a mapping program. Surface field work (excluding drill-related activities) was conducted over 16 days between July 17th and September 23rd. John Proffett continued mapping in Kona Valley to add to previous years' mapping.

Ninety rock samples and six soil samples were collected and sent to ALS Laboratories in North Vancouver for sample preparation and analysis. Sample locations are shown in Figure 7-1 and Figure 7-2. Nearly two thirds of the rock samples collected were sent for the whole rock characterization package for lithogeochemical identification. Prospects mapped in 2024 include Upper Difficult Creek (UDC), Kona Creek/Midway, Johnson Tract, Lower Difficult Creek, Easy Creek, and Sediment Ridge. Minimal new mineralization/alteration was discovered in 2024.

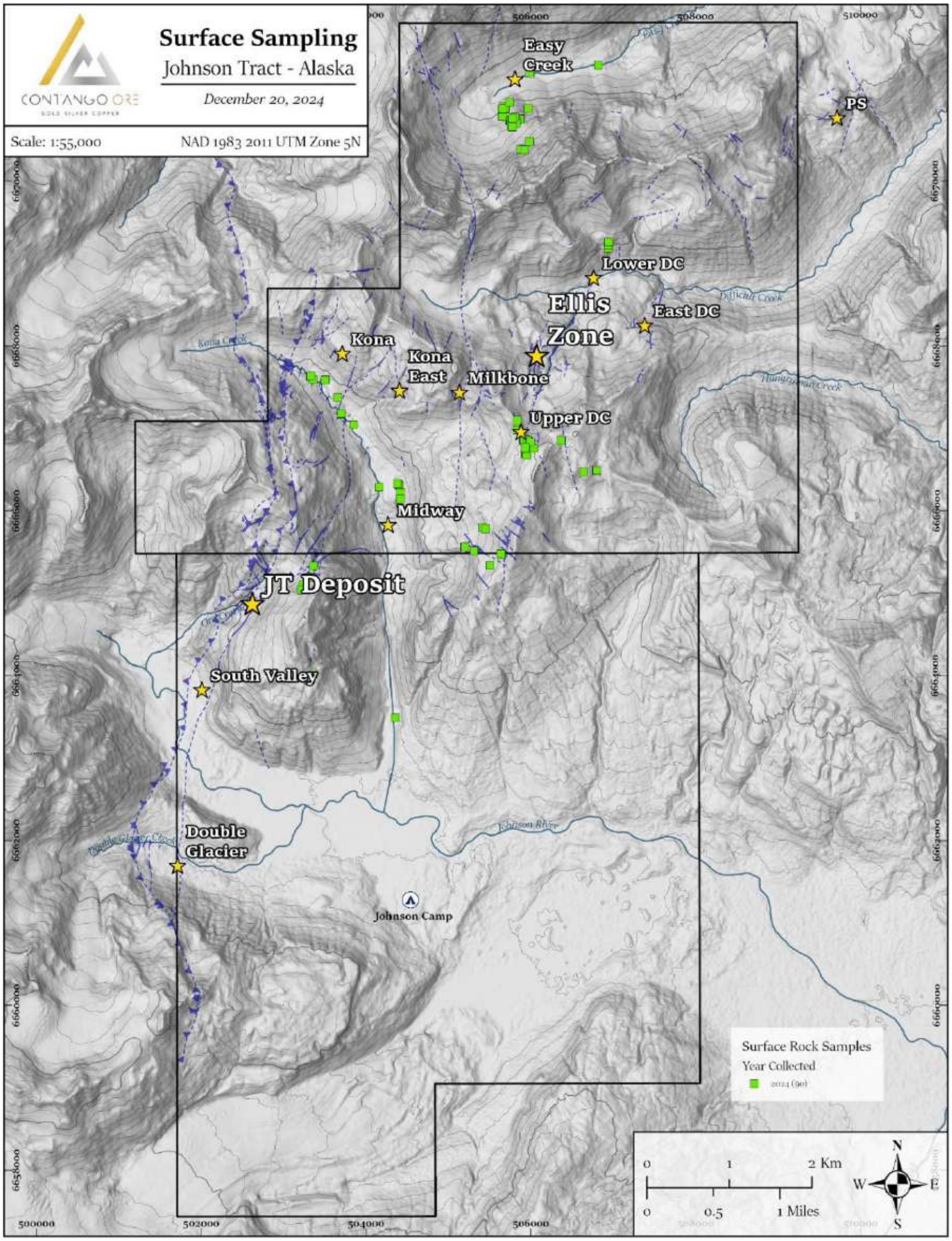


Figure 7-1 Map showing surface rock samples collected by Contango Ore in 2024

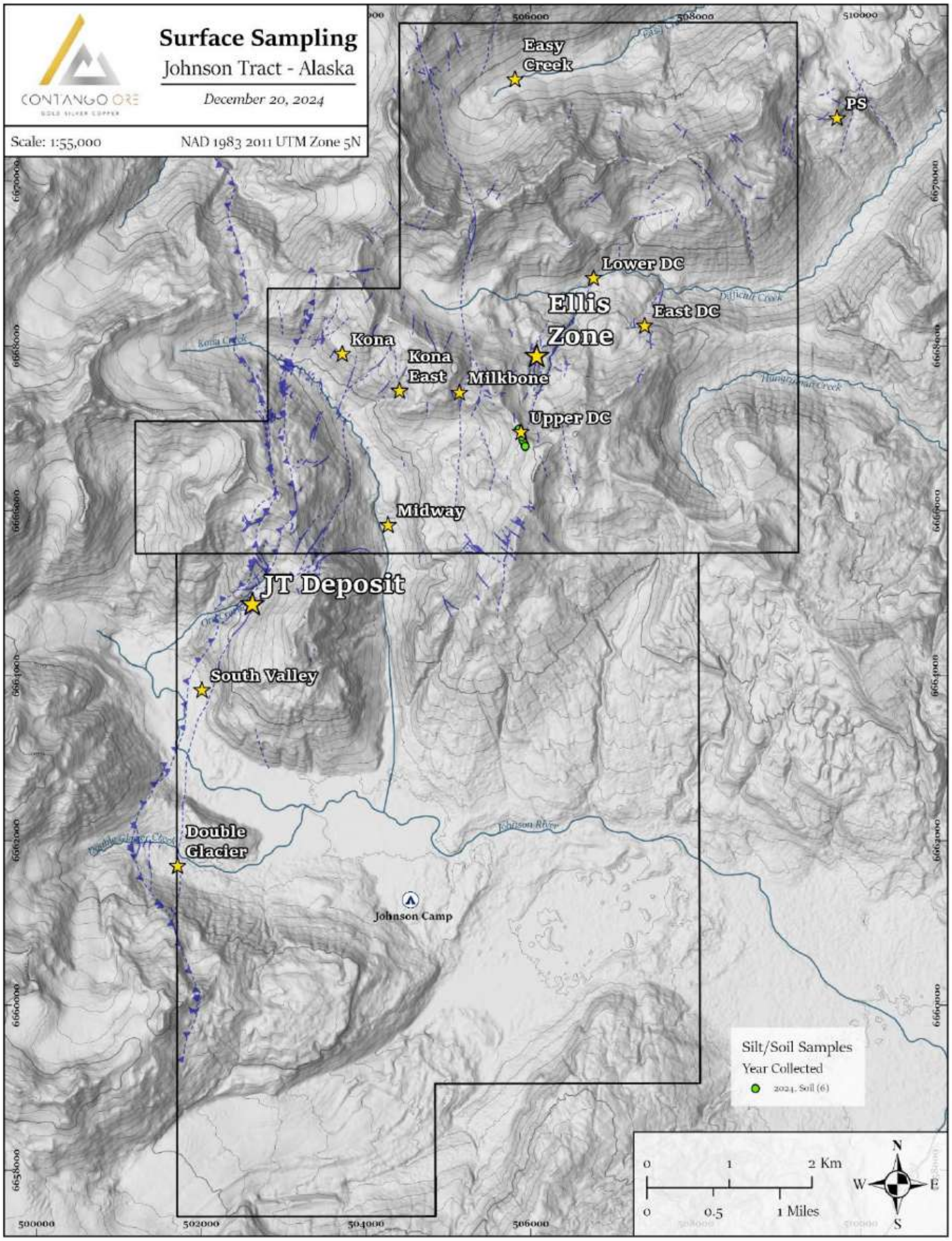


Figure 7-2 Map showing surface soil and stream sediment (silt) samples collected by Contango Ore in 2024

7.2 Drilling

The 2024 drill program was designed to infill and upgrade the upper one-third of the Deposit from inferred and indicated to indicated and measured, and to collect additional hydrogeologic data used to model overall hydrology and water quality. From July 27th through September 25th of 2024, the company completed 21 drillholes totaling 3,092.3m (including 1 failed hole). Three of these drillholes were drilled for hydrogeologic purposes, at a total of 924.7m. Drillhole locations are shown in Figure 7-3 and Figure 7-4.

A centrifuge was used to manage cuttings due to the clay-rich saturated ground, difficult sump-digging conditions, and likelihood of return water. Cuttings were transported off-site to a trench and buried according to reclamation protocols. A second drill, HyTech-S057, was added on September 9th to boost drill productivity.

Piteau & Associates helped to design and manage the hydrogeologic program. The previous 2023 hydrogeologic program was designed to characterize the groundwater system east of the Dacite fault, within the Dacite Quartz-Feldspar Porphyry unit, where the exploration drift is designed. Characterization of the Dacite Fault was also a priority. The 2024 program was designed to collect sufficient data to characterize the groundwater system west of the Dacite Fault, within the Deposit, and to further characterize the Dacite Fault.

Three holes were designed as part of the 2024 hydrogeologic program. A deep hole through the bottom of the Deposit and crossing the Dacite Fault, a vertical hole through the center of the Deposit, and a shallow hole crossing the Deposit and Dacite Fault. These three holes, along with one hole drilled in 2023, provide a good spatial representation of the expected ground water condition through the Deposit and west of the Dacite Fault.

Infill drilling from surface was designed to intersect the Deposit at 25 m (82 ft.) spacing, using a 25 m grid and older holes for planning. All holes successfully intersected some form of mineralization. A list of significant intercepts is shown in Table 7-1.

Work was initiated during the 2024 infill drill program to distinguish, categorize, and model mineralization styles within the Deposit based on texture, style, grade, mineralogy, and trace element composition. This work will support geometallurgical characterization and improve geologic modeling. The study included on-site review and documentation of 2024 drill core and a review of core photos from 2019 to 2023 drilling that intersected the high-grade resource, to define mineralization styles based primarily on texture, vein type, and mineralogy.

Six historic holes were relogged and sampled during 2024. A total of 488 infill samples were taken.

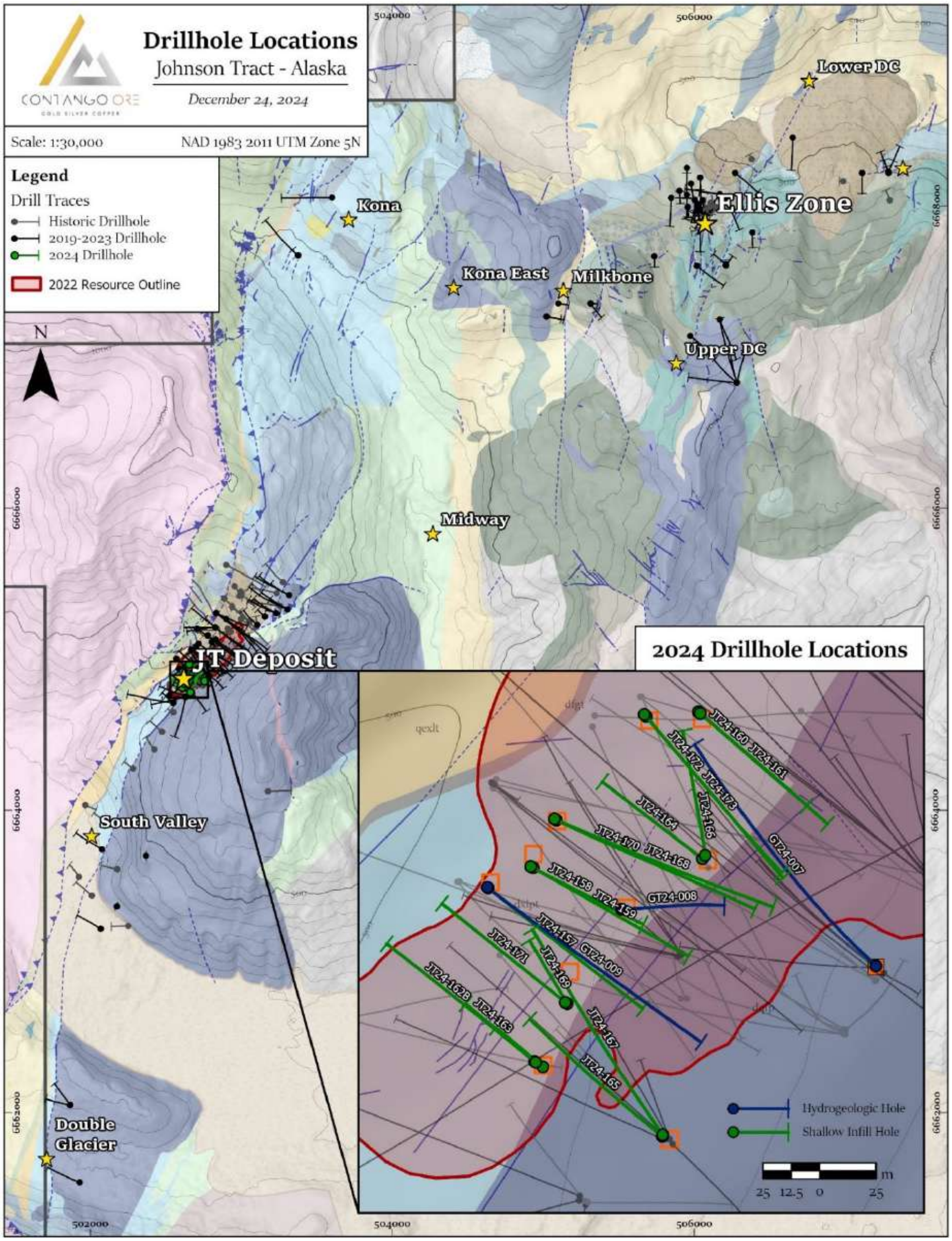


Figure 7-3 Plan map showing location of 2024 drilling

Figure 7-4 3D view of 2024 drillholes. Infill holes are shown in green and Hydrogeologic holes in purple. The 2022 block model shows indicated blocks in green and inferred blocks in blue

Table 7-1 Significant Assay Intersections from 2024 Drill Program at the Johnson Tract Project

Drill Hole	From (m)	To (m)	Length (m)	Au (g/t)	Ag (g/t)	Cu %	Pb %	Zn %	AuEq[1] (g/t)
GT24-007	**229**	**322**	**93**	**6.65**	**7.66**	**1.14**	**0.36**	**2.23**	**9.1**
incl	254	271	17	21.3	7.75	1.16	0.2	3.66	24.32
GT24-008	**5.9**	**229.4**	**223.5**	**8.89**	**6.06**	**0.45**	**0.88**	**4.42**	**11.5**
incl	141.4	196.9	55.5	27.61	8.31	0.73	0.97	3.54	30.25
GT24-009	**62**	**136.8**	**74.8**	**2.08**	**5.12**	**0.64**	**0.72**	**6.87**	**5.88**
JT24-157	**47.5**	**94.5**	**47**	**0.96**	**3.67**	**0.35**	**0.08**	**5.6**	**3.72**
incl	71	94.5	23.5	1.72	4.3	0.46	0.15	8.89	5.97
JT24-158	**45**	**93.6**	**48.6**	**1.95**	**4.81**	**0.42**	**0.58**	**4.32**	**4.41**
JT24-159	**42.5**	**72.7**	**30.2**	**3.63**	**4.23**	**0.48**	**0.24**	**4.95**	**6.31**
incl	49.5	64.2	14.7	6.27	5.92	0.53	0.47	8.6	10.58
JT24-160	No Significant Intercepts								
JT24-161	No Significant Intercepts								
JT24-162B	**4.7**	**78.1**	**73.4**	**0.95**	**12.62**	**0.17**	**0.28**	**6.65**	**4.06**
incl	45.4	67.2	21.8	1.64	8.03	0.3	0.17	12.96	7.4
JT24-163	**7.6**	**15.9**	**8.3**	**3.12**	**3.49**	**0.18**	**0.13**	**4.15**	**5.09**
AND	**106.2**	**113.6**	**7.4**	**0.32**	**12.56**	**0.09**	**0.12**	**8.19**	**3.92**
JT24-164	No Significant Intercepts								
JT24-165	No Significant Intercepts								
JT24-166	**36.5**	**39**	**2.5**	**0.3**	**5.34**	**0.08**	**0.34**	**8.33**	**3.92**
JT24-167	**125.9**	**145.9**	**20**	**1.49**	**4.43**	**0.29**	**0.17**	**8.27**	**5.29**
JT24-168	**49.2**	**67.3**	**18.1**	**1.86**	**5.87**	**0.28**	**0.83**	**5.26**	**4.6**
JT24-169	**6.9**	**50.5**	**43.6**	**0.46**	**3.15**	**0.13**	**0.06**	**8.63**	**4.17**
JT24-170	**59.1**	**71.1**	**12**	**6.07**	**3.22**	**0.4**	**0.05**	**2.46**	**7.6**
AND	**80.1**	**145.4**	**65.3**	**4.97**	**3.76**	**0.37**	**0.62**	**5.46**	**7.83**
JT24-171	**4.5**	**50.9**	**46.4**	**0.4**	**8.03**	**0.18**	**0.2**	**9.32**	**4.53**
JT24-172	No Significant Intercepts								
JT24-173	No Significant Intercepts								

[1] Assumed metal prices are US$2,000/oz for gold (Au), US$26/oz for silver (Ag), US$4.00/lb copper (Cu), US$0.95/lb lead (Pb), and US$1.25/lb for zinc (Zn); Gold Equivalent (AuEq) is based on assumed metal prices and payable metal recoveries of 97% for Au, 85% for Ag, 85% Cu, 72% Pb and 92% Zn from metallurgical testwork completed in 2022. AuEq equals = Au g/t + Ag g/t × 0.01 + Cu% × 1.20 + Pb% × 0.24 + Zn% × 0.41

7.2.1 Drilling Methods and Equipment

In 2024, drilling was contracted by Hy-Tech Drilling USA Inc. (Hy-Tech). Two helicopter-portable TECH5000 hydraulic drill rigs were used by Hy-Tech to produce 61.1 mm (HQ3) diameter and 47.6 mm (NQ) diameter core with double tube core barrels (Figure 7-5).

Drills and supporting materials were transported between drill sites by an AS350B3 helicopter operated by Soloy Helicopters of Wasilla, AK.

7.2.2 Collar Surveying and Coordinates

Drill pad locations were identified by geologists using a Trimble R1 receiver. Final collar coordinate surveys were acquired using a Trimble R2 receiver which achieved cm-scale survey precision. Coordinates were collected in NAD83 (2011) UTM Zone 5N and NAVD88 Geoid 12b.

Figure 7-5 Hy-Tech's TECH5000 Drill Rig

7.2.3 Drill Pads

Drill pads were constructed by trained mountain crews using rough-sawn timbers and planks to create a flat level deck approximately 20 ft by 20 ft plus an annex rack for drill rods.

7.2.4 Downhole Surveying

Once the drill pad was built and the drill rig mobilized, the azimuth and dip were confirmed by a TN14 gyrocompass provided by REFLEX of Vancouver, BC. After the initial runs of coring were complete, and casing was established in the hole, the attitude and depth were confirmed using a REFLEX OMNIx42 Gyro survey tool.

During drilling, surveys were taken by drillers at 50 m (164 ft.) intervals to confirm the hole stayed on target. Prior to hole termination, an end of hole survey was completed by the driller using continuous surveys in and out with points taken at 5m (16 ft.) intervals.

7.2.5 Units

Holes drilled by Hy-Tech were drilled in meters, and depths recorded on wooden meterage blocks. All holes were surveyed in meters. All geotechnical and geological data, including RQD, lithologic data and sampling data, was collected in meters.

7.3 Core Handling and Transport

Drill crews placed the core into 80 cm wooden core boxes at the drill rig. Wooden meterage blocks were placed by the drill crew at the end of the core in the box each time the core barrel was pulled. Each wooden core box was labelled with its hole and box number before being transported away from the drill. Core boxes were transported by helicopter once or twice daily from the drill site to the logging facility at the Johnson Tract camp (Camp). Boxes were transported in a secure metal cage designed for the 80 cm boxes. box numbers and depth markers were checked at the Camp by a Geotechnician.

7.4 Core Logging and Processing

7.4.1 Core Photos

High-resolution photographs of fresh, wet core in each core box were captured by a Geotechnician after marking with the core with an orientation line where possible, but prior to logging and sampling. A portable photo station with a Nikon D7500 DSLR digital camera was used to standardize core box photos. Detailed photos of all whole rock characterization samples were also collected. Detailed photographs of significant textures, geologic structures, mineralization, and/or alteration were also taken at the discretion of the core logging geologist.

7.4.2 Rock Quality Designation (RQD)

Detailed drill core geotechnical data was collected in all drill holes, from 30 m (98 ft.) above the mineralized zone to the end of the hole for resource infill drill holes. The Q-system (RQD, Jn, Jr, Ja) and total core recovery (TCR) data were collected by Geotechnicians on a three m (9.8 ft.) run by run basis, supervised by core logging geologists.

7.4.3 Geological Logs

Lithology, alteration, mineralization, and structure were recorded by core logging geologists and geologic logs were reviewed by senior geologists for accuracy. Sample intervals were decided by a senior geologist. Core logging and sample interval data were entered directly into MX Deposit software.

7.4.4 Oriented Core

Core samples were oriented using the Reflect ACT III RD orientation tool. Core recovered by Hy-Tech drillers was marked with orientation marks at the drill prior to being transported to the Camp where orientation lines were drawn on reconstructed core by a Geotechnician. In 2024, holes were drilled using split tubes and HQ3 size core to improve recovery and orientation quality.

7.5 Hole Closure

Prior to 2024, holes with mineralized intercepts were typically cemented through the mineralized zones with a 30 m (98 ft.) buffer. However, in 2024, the decision was made to not cement the infill drillholes, as the amount of cement needed was prohibitive. All drillholes were plugged with displacement plugs with ~3 m (~10 ft.) of bentonite at the collar and directly above the static water table, where it was intersected. Casing (typically 1.5 to 3 m) was left at ground level with an aluminum cap stamped with the drillhole ID, azimuth, and dip.

7.6 Core Storage

All core was catalogued and stored on pallets at the Johnson Tract exploration camp in Alaska (Figure 7-6).

Figure 7-6 Core Yard at Johnson Camp

8 SAMPLE PREPARATION, ANALYSIS AND SECURITY

8.1 Overview

This chapter outlines the steps, processes, and policies for the sample preparation and analysis of drill core samples included in the Johnson Tract (the Deposit) resource. The following accounts for all samples used to create the Mineral Resource Estimate for Johnson Tract published in 2022 (NI 43-101 Technical Report for Johnson Tract Project, 2022).

8.2 Sample Collection

Sample intervals were selected based on logged geological contacts. Interval lengths were on average 1.5 m (5 ft.) through unaltered or weakly mineralized zones and on average one meter (3.3 ft.) through mineralized zones. No sample interval was less than 0.5 m (1.6 ft.). The core was cut by a rock saw into even halves, with one half being placed into a plastic sample bag labelled with the sample number and sample tag. The corresponding sample number tag was placed in the core box to record each sample interval.

8.3 Sample Preparation and Security

Sample preparation was conducted by appropriately trained and qualified personnel. Individual sealed plastic sample bags were placed in sealed woven rice bags for shipment to the analytical laboratory. Samples were flown directly from site to Anchorage under the custody of an appropriately trained contractor for secure delivery to a commercial transportation company to deliver the samples to Reno, Nevada, USA into the custody of ALS Laboratories. Shipments were tracked via DHL and samples were recorded on the ALS Webtrieve system once received.

8.4 Analytical Technique

A total of 8,399 drill core samples, including 245 duplicates and 844 standards and blanks, were analyzed during the 2021 drill program. A total of 17,492 analyses were conducted, including 8,399 Au analyses, 8,399 ICP analyses, 457 ore-grade analyses for Ag, Cu, Pb, and Zn, 17 for metallic screening, 44 very high-grade Au, one very high-grade Ag, and 175 whole rock characterization. All samples were prepared and analyzed by ALS Minerals in Reno, Nevada, USA.

The raw samples were crushed in an oscillating steel jaw crusher (>70% of the sample passing through a 2mm screen), a 500 g riffle split was then pulverized to 85% passing through a 75-micron screen.

Four acid digestion ICP (ALS method ME-ICP61) was performed for the analysis of 33 elements: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, and Zn. The method utilizes inductively coupled plasma atomic emission spectrometry (ICP-AES) conducted on 0.25 g of prepared sample digested in perchloric, nitric, hydrofluoric and hydrochloric acids. For samples in which Cu, Zn, Pb, or Ag values exceeded the ME-ICP61 upper detection limits, ALS method OG62 was utilized – a four-acid ICP-AES technique calibrated for ore grade mineralization. For samples in which Ag exceeded the OG62 upper detection limits, Ag by fire assay and gravimetric finish (Ag-GRA21) was used.

Gold analyses were performed on a 50 g sub-sample using ALS method Au-AA26; fire assay fusion with atomic absorption spectroscopy (AAS) finish. For samples that exceeded the upper detection limit of Au-AA26, Au by fire assay with gravimetric finish (Au-GRA22) was used. For samples containing coarse Au, ALS method Au-SCR24, metallic screening at 100 microns on 1kg pulps with duplicate assays on screen undersize was used.

8.5 Specific Gravity Testing

Past Specific gravity (SG) studies include three SG test programs by Anaconda that included SG determination by mass balance from X-Ray diffraction and an air compression pycnometer. This work yielded an average SG of 3.04 t/m3, with a range from 2.94 t/m3 to 3.16 t/m3.

Westmin also conducted an SG test program in 1994 on 60 samples of drill core which yielded an average SG value of 2.877 t/m3. The work was carried out on fresh un-split core from drillholes JM-93-064, 65, 66 and 67. The ends of the core were squared off with a core saw and the volume of the core determined by measurement of length and diameter, using an average of six separate measurements taken with either a tape measure for the length or a micrometer for the diameter. The samples were weighed on a triple beam balance to a tenth of a gram and then dried in an oven at 105 degrees Celsius for three hours. After cooling down, they were re-weighed and the moisture content, un-dried specific gravity and dried specific gravity were calculated (Westmin, 1994).

More recent SG measurements were taken in the core logging facilities by a trained geologist in 2019. SG measurements were taken for 615 historic and 2019 drill core samples using the standard weight-in-air/weight-in-water method. One to three representative pieces of half-core from each sample were measured and the results were averaged. Generally, every fifth sample from within mineralized or silicified zones was measured for SG. Field SG measurements ranged from 2.44 t/m3 to 4.28 t/m3 with an average value of 2.79 t/m3 and a median value of 2.72 t/m3.

As a comparison, ALS laboratories measured SG using a pycnometer on pulps for 635 samples. Samples measured by pycnometer yielded an average SG of 2.83 t/m3, with a median of 2.81 t/m3, across a range from 2.56 t/m3 to 3.85 t/m3. For 170 out of the 244 samples (69.7%) that received both a field and a lab SG measurement, the pycnometer result was higher than the field result (Figure 8-1). Pycnometer results are higher than field measurements by an average of 4.9%. Relative percent difference was calculated for each of the 244 pairs of measurements and the average absolute relative percent difference between the field and the lab measurements is approximately 5.3%. In general, the data show a moderately high level of precision for field measurements compared to lab SG measurements, indicated by the clustering of data points below 10% absolute relative difference. Twenty-one pairs of measurements (8.6% of the data set) have an absolute relative difference of 10% or greater, and only 3 pairs of measurements (1.2% of the set) display low precision. A factor potentially contributing to the differences in results between the two methods is that micro-void spaces internal to pieces of halved core are included in the field measured SG, whereas the generally higher pycnometer measurements conducted on pulps don't have the effect of void spaces and vugs. For all samples ≥2 g/t gold equivalent, the average SG by pycnometer was 2.84 t/m3 and the median was 2.81 t/m3. Based on the average SG values for samples with ≥2 g/t gold equivalent using pycnometer measurements, it was concluded that a constant SG value of 2.84 t/m3 should be applied for the resource estimate.

No SG samples were collected during the 2021, 2022, or 2023 drilling programs.

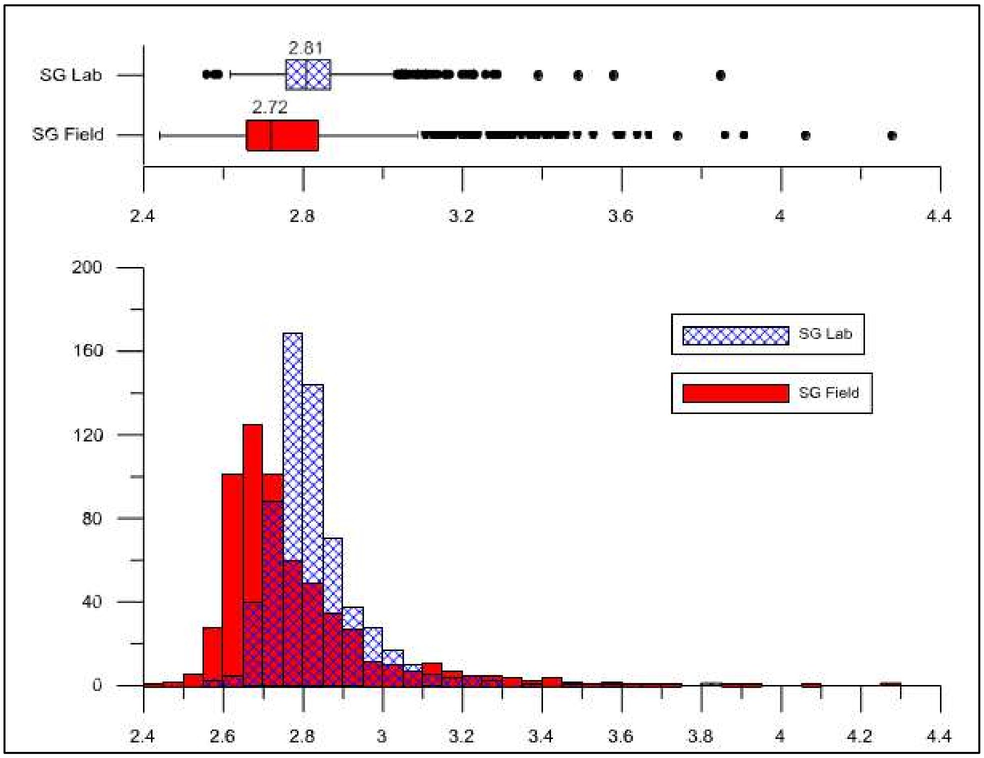


Figure 8-1 Histogram and Box and Whisker plots showing all Lab and Field SG Data

8.6 Twin Drillhole Comparison

A total of two drillholes in 2019 were twins of historic drillholes (Figure 8-2). Drill hole JT19-082 collar is within 5m of the collar for the twinned hole JR93-065. Drill hole JT19-082 maintained its orientation and did not “sag” during the drilling process. Three-dimensional comparison of these two holes show there is a separation of approximately 9m between the two drillholes at the bottom of mineralization (Figure 8-3). Additionally, the width and the grade are significantly greater in JT19-082 (Table 8-1). The 2019 drilling was completed with HQ size drill core which is larger diameter than the NQ size drilled in the past. The larger diameter core provides for a larger and more representative sample and may, in part, be responsible for the higher grades observed in JT19-82 over JR93-65 as well as maintaining its original orientation. The sample differences may also be due to natural grade variations.

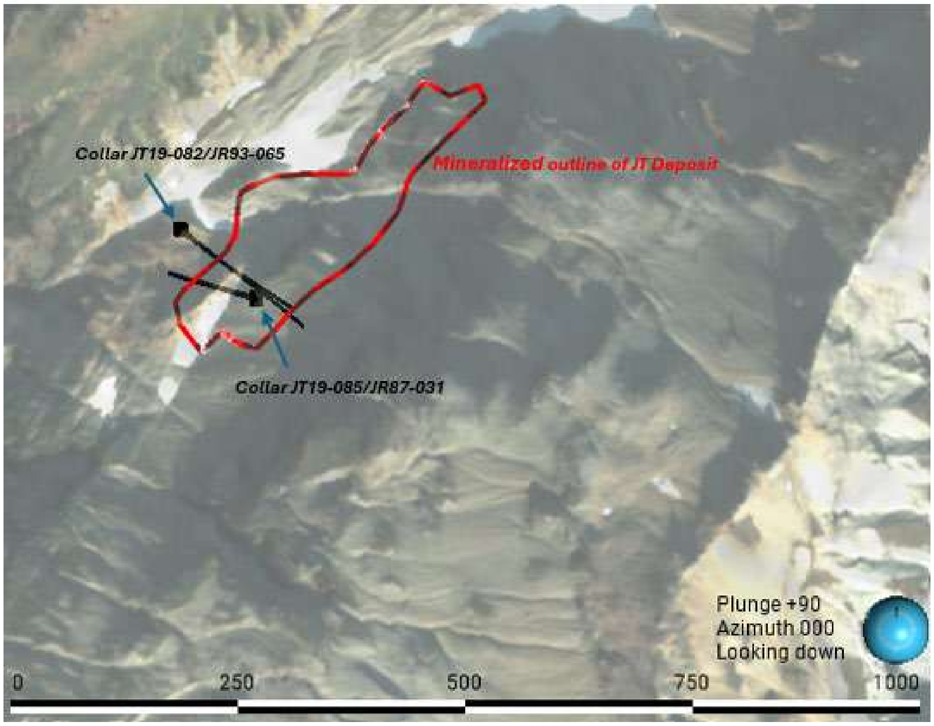


Figure 8-2 Plan view map showing collar locations of twinned holes in 2019 drilling

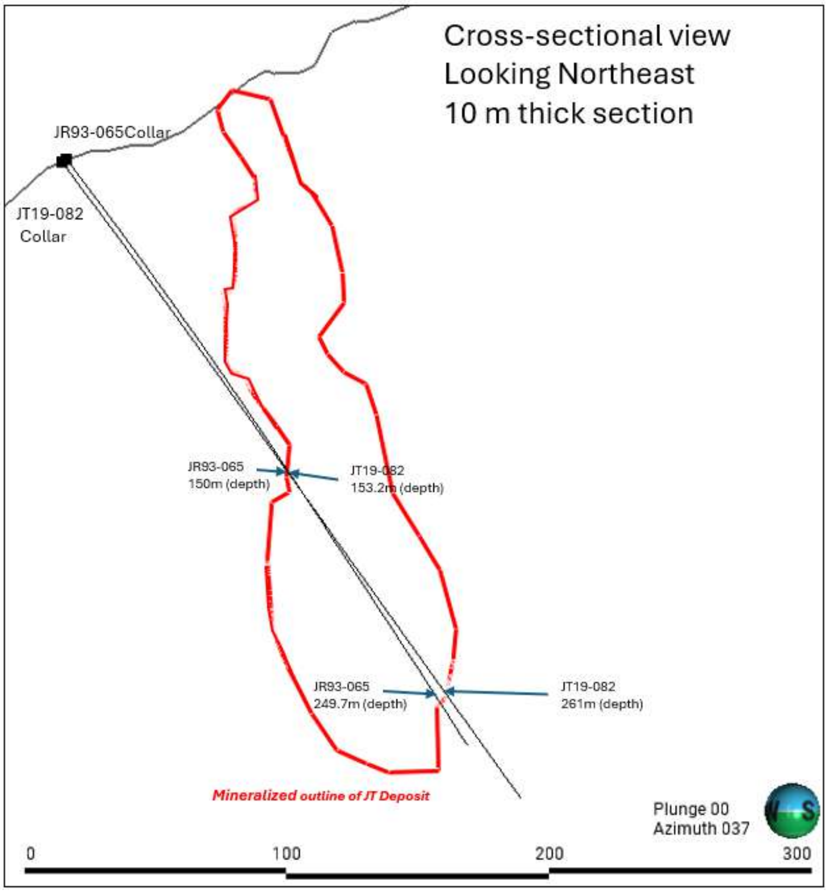


Figure 8-3 Cross-sectional view of Hole JT19-082 twinning historic hole JR93-05

Table 8-1 Comparison of JT19-082 assay and intersections with historic drillhole JR93-065

Drillhole	From (meters)	To (meters)	Length (meters)	Au (g/t)	Ag (g/t)	Cu %	Zn %	Pb %
JR93-065	150.0	249.7	99.7	10.07	6.7	0.90	6.34	1.27
JT19-082	153.2	261.0	107.8	12.42	8.9	0.88	7.11	1.64

Drillhole JT19-085 was completed as a twin of historic drillhole JR87-031 for NI 43-101 validation purposes. The location and extent of mineralization intersected in JT19-085 correlates well with JR87-031. JT19-085 was collared within 3m of historic hole JR87-031. Three-dimensional analysis shows these holes maintain approximately 3m or less deviation between the two throughout the drilling process (Figure 8-4). The overall grade is significantly greater in JT19-085 (Table 8-2).

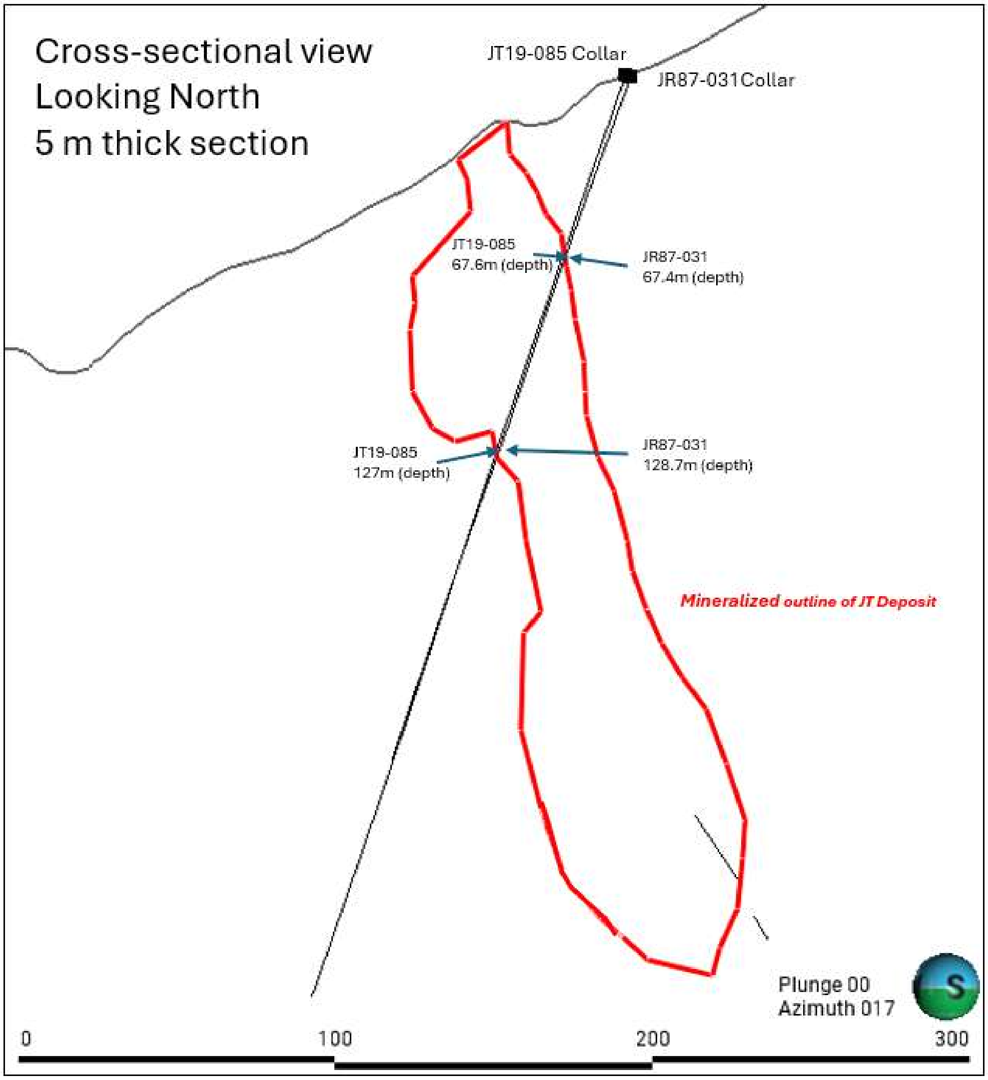


Figure 8-4 Cross-sectional view of Hole JT19-085 twinning historic hole JR 87-031

Table 8-2 Comparison of JT19-085 assay and intersections with historic drillhole JR87-031

Drillhole	From (meters)	To (meters)	Length (meters)	Au (g/t)	Ag (g/t)	Cu %	Zn %	Pb %
JR87-031	67.4	128.7	61.3	4.94	6.5	0.48	7.48	0.45
JT19-085	67.8	127	59.2	8.16	5.9	0.39	8.8	0.72

In summary, the 2019 program drilled larger diameter HQ core than historic holes, which provided for a 78% larger and more representative sample. Higher grades notwithstanding, the 2019 twin drillholes generally demonstrated very good correlation with the original historic holes and support the use of historic drill data in mineral resource estimation work.

8.7 Assaying Quality Assurance and Quality Control (QA-QC)

Assay results for the external quality control samples were evaluated by senior project geologists to verify the reliability and trustworthiness of the Johnson Tract database. In general, performance of the standard control samples was good, with most assay results falling within three standard deviations from the certified mean and showing no evidence of bias. Re-assaying was deemed necessary for subsets of four sample batches. Gold metallic screening was performed for subsets of two sample batches to verify the reliability of high gold assay values. Poor fusion issues due to the geological matrix of the standards were detected by the laboratory which caused consistent low gold values for three batches. The poor fusion issue was corrected by the lab by utilizing lower sample weights to accommodate complete fusion. Any sample prep contamination issues detected for precious or base metals within the field blanks were traced back to carryover from highly mineralized samples preceding in the sequence. Review of duplicate assay pairs showed generally high levels of precision and reproducibility for lab results. The data indicate sulfide mineralization was relatively homogeneous in field duplicate samples.

In the opinion of the Author, Dave Larimer, CPG, the analytical quality control program developed for this project meets all requirements and has been overseen by appropriately qualified geologists. The exploration data was acquired using quality control procedures that meet industry best practices for a drilling-stage exploration project, and the data are adequate for the purposes of mineral resource estimation.

8.7.1 Types Of QA-QC Data

Quality control data for the Johnson Tract included both internal and external quality control measures. ALS Minerals Canada Ltd. Included internal laboratory quality control measures consisting of blank, certified reference material, and duplicate pulp samples within each batch of samples submitted for assay. Industry-standard quality control measures were also implemented by the Johnson Tract Project Team.

Standards

Certified reference material control samples (standards) allow monitoring of the precision and accuracy of laboratory assays. Three different polymetallic standards (CDN-ME-1414, CDN-ME-1704, CDN-ME-1802) and one gold standard (CDN-GS-37) were professionally prepared and supplied by CDN Resource Laboratories Ltd. Of Langley, BC for the 2021 exploration program and have been used in all subsequent drilling programs. Standards were selected based on expected grades of mineralization. Polymetallic standards were inserted into the sample sequence every 20 samples; i.e., for those sample numbers ending in 00, 20, 40, 60, and 80. Gold standards were also inserted into the sample sequence every 20 samples for sample numbers ending in 01, 21, 41, 61, and 81. Certified values are shown in Table 8-3.

Table 8-3 Certified mean values for standards used at the Johnson Tract Project

Standard	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
CDN-GS-37	37.08				

CDN-ME-1414	0.284	18.2	0.219	0.105	0.732
CDN-ME-1704	0.995	11.6	0.692	0.049	0.8
CDN-ME-1802	1.255	75	0.51	2.6	6.11

Scatter plots for each standard marked with second and third standard deviations for each certified element were generated. Results that exceeded the second standard deviation were considered unreliable and were subjected to further investigation.

Blanks

Field blanks were used to monitor:

- contamination introduced during laboratory sample preparation
- analytical accuracy of the laboratory
- sample sequencing errors.

Blank material consisted of dacitic porphyry; a post-mineralization intrusion found on the property. The material was thoroughly checked to ensure no base and/or precious metal mineralization was present in the blanks. Field blanks were inserted into the sample sequence every 20 samples for those sample numbers ending in 10, 30, 50, 70, and 90. Assay results for blanks were plotted on control charts marked with 5x lower limit of detection for Au and Ag, or third standard deviation for Cu, Pb, and Zn, as warning levels.

Duplicates

Duplicate samples and/or assays were collected to monitor the reproducibility of assay results generated by the laboratory, as well as the homogeneity of samples submitted for assaying. Duplicates were collected every 33 samples for those sample numbers ending in 33, 66, and 99. To obtain duplicate samples, the core cutter would collect quartered core.

Assay results from duplicate pairs were plotted against each other, applying a linear regression and R2 value for reference. Duplicate precision estimates were based on these equations of the linear regressions and the R2 values.

8.7.2 Standards QA-QC Results and Analysis

Gold Standards – High Grade CDN-GS-37

Of the 13 stand-alone high-grade gold standard (CDN-GS-37) samples analyzed, usable values were returned for four samples; six of the samples were found to have insufficient material to complete the analysis. The remaining three of the returned assay values were outside the 3rd standard deviation for Au (Figure 8-5). Extra material was sent to the lab for additional re-assay and gold metallic screens (ALS code: Au- SCR24). Re-assays were performed for selected subsets of two batches.

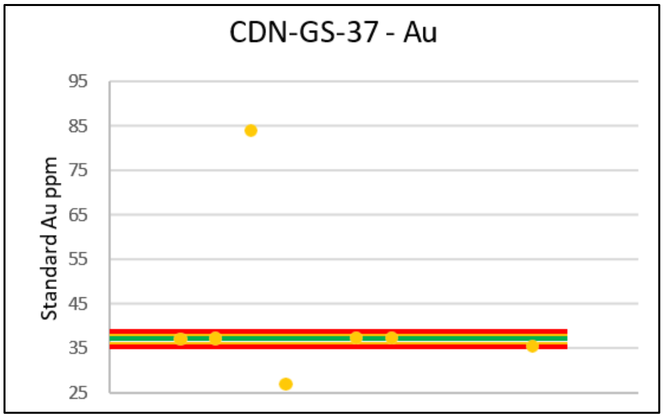


Figure 8-5 *Control charts for high-grade gold standard CDN-GS-37. Mean value is plotted as green lines, second standard deviations are yellow, and third standard deviations are red*

Polymetallic Standard – Low-grade CDN-ME-1704

Of the 346 low-grade polymetallic standard (CDN-ME-1704) samples analyzed, 324 usable values were returned for Au-AA24, and 316 usable sets of results were returned for ME-ICP61. Twenty-two of the Au results were outside the 3rd standard deviation (Figure 8-6). Five of the fails occurred consecutively in the sample sequence. Re-assays were performed for subsets of these sample batches. In other cases, no corrective action was necessary for Au results of polymetallic standards, as the fails were isolated or in the not reportable, non-mineralized zones. Five of the Ag results were outside the 2nd standard deviation. In all cases, no action was necessary for Ag results. Sixteen low-grade polymetallic standards had Cu outside the 3rd standard deviation including three consecutive fails in one sample batch; corrective re-assays were performed for that sample batch. Five low-grade polymetallic standards reported Zn outside the 3rd standard deviation; no corrective action was necessary. Four isolated low-grade polymetallic standards reported Pb values near the 3rd standard deviation; no corrective action was necessary.

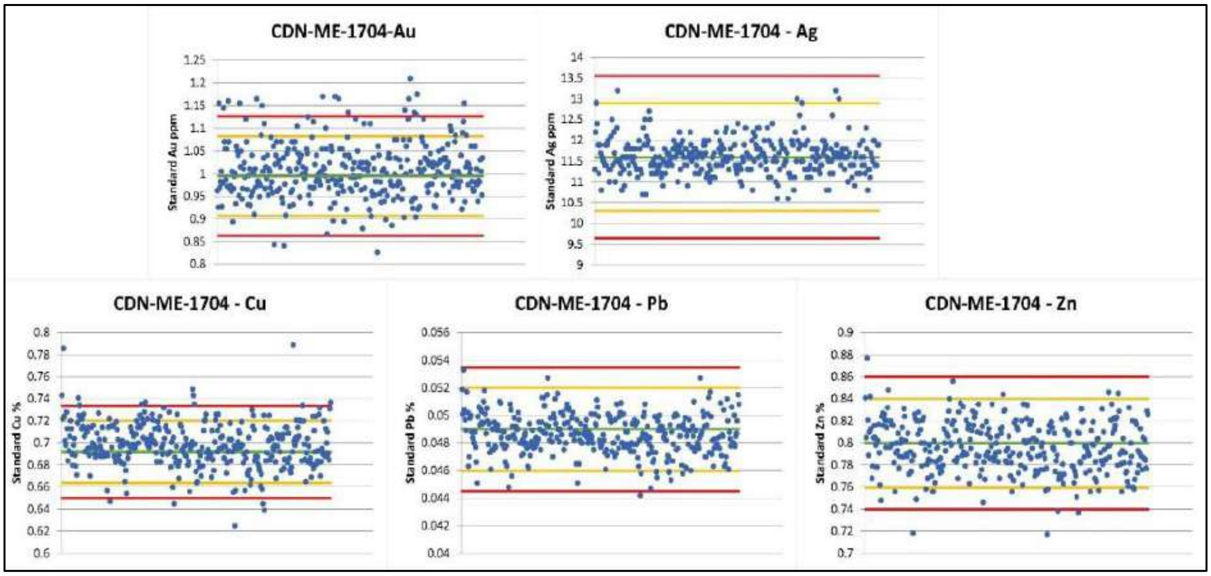


Figure 8-6 Control charts for low-grade polymetallic standard ME-1704. Mean value is plotted as green lines, second standard deviations are yellow, and third standard deviations are red

Polymetallic Standard – Low-grade CDN-ME-1414

Of the 28 low-grade polymetallic standard (CDN-ME-1414) samples analyzed, 18 usable values were returned for Au-AA24 and 21 complete sets of results were returned for ME-ICP61 and ore-grade assays. Six samples were found to have insufficient material to complete the re-run analysis. Two Au values were outside the 2nd standard deviation, and two Au values were outside the 3rd standard deviation (Figure 8-7). No corrective action was taken for the isolated standard deviation fails. Two values for Ag were outside the 2nd standard deviation, with three Ag values outside the 3rd standard deviation and occurring as isolated fails. Five Zn values were outside the 3rd standard deviation with several Cu values also outside the 2nd standard deviation. Re-assays were performed for two sets of corresponding samples. No action was necessary for isolated fails since the adjacent standards passed QC.

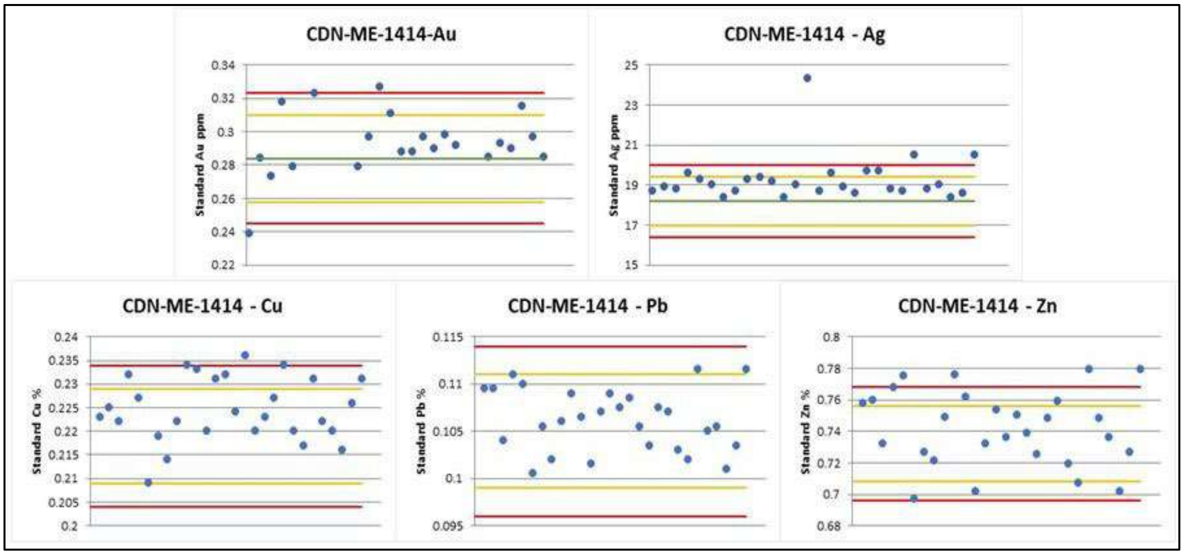


Figure 8-7 Control charts for low-grade polymetallic standard ME-1414. Mean value is plotted as green lines, second standard deviations are yellow, and third standard deviations are red

Polymetallic Standard – High-grade CDN-ME-1802

Of the 25 high-grade polymetallic standard (CDN-ME-1802) samples analyzed, 11 usable values were returned for Au-AA24 and 24 complete sets of results were returned for ME-ICP61 and ore-grade assays. Seven of these samples had insufficient materials for completing second run gold analysis and seven of the samples showed consistent low gold values due to fusion issues including incomplete digestion and lead shot (Figure 8-8). Metallic screens were completed for selected subsets of three sample batches. One returned Ag values that were outside the 2nd standard deviation. Four values for Cu were outside the 2nd standard deviation. Four returned Pb values that were outside the 2nd standard deviation, while one Pb value was outside the 3rd standard deviation. One Zn value was outside the 2nd standard deviation; no action was necessary for the isolated 2nd standard deviation fails. Extra low-grade polymetallic standards were sent to ALS for re-assays.

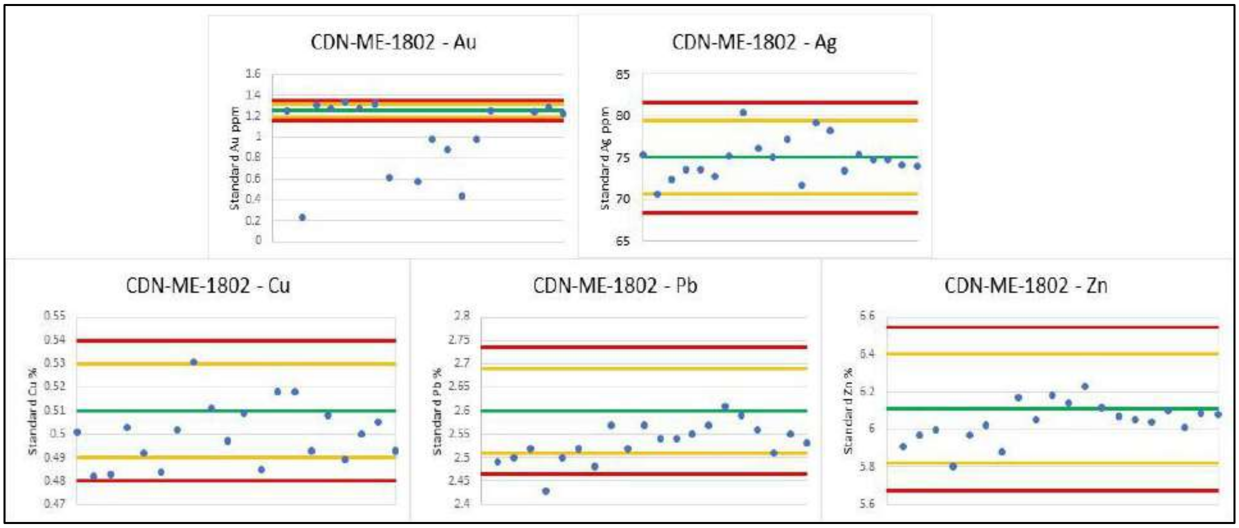


Figure 8-8 Control charts for low-grade polymetallic standard ME-1802. Mean value is plotted as green lines, second standard deviations are yellow, and third standard deviations are red

8.7.3 Blanks QA-QC Results and Analysis

Of the 376 usable blank samples that were analyzed over the course of the 2021 exploration program, there were four instances of Au results exceeding the warning level of five times the lower limit of detection (LLD). There were 5 instances of results exceeding the 2nd standard deviation, and 15 instances exceeding the 3rd standard deviation for those elements (Figure 8-9). Three of the Pb and Zn value fails occurred consecutively in the sample sequence. Based on past conversations with ALS laboratories, it is understood that up to 10% carryover can occur between samples, and the source of all blank assays with elevated results can be traced back to high-grade preceding samples in the sequence.

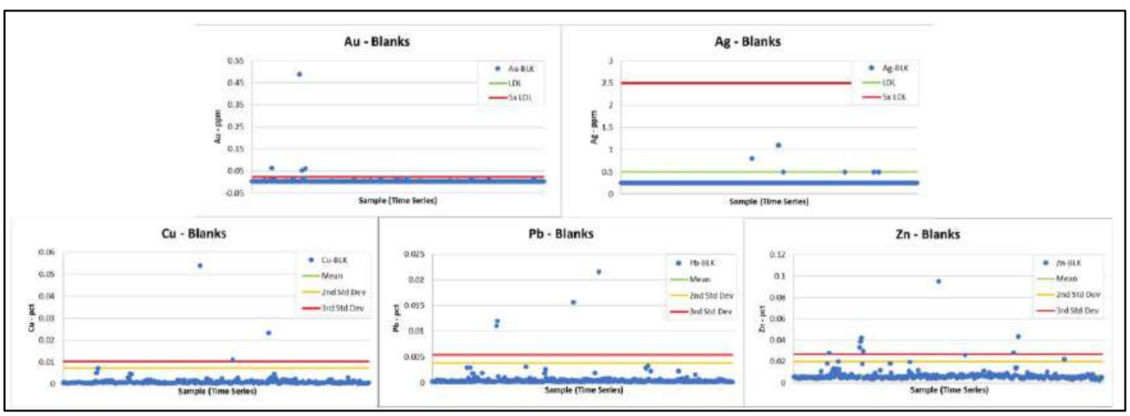


Figure 8-9 Control charts for blanks. For Au and Ag, LLD is green, warning level of 5x LLD is red. For Cu, Zn, and Pb mean is green, second standard deviation is yellow, third standard deviation is red

8.7.4 Duplicates QA-QC Results and Analysis

Review of the 218 duplicate pairs that were analyzed during the 2021 exploration program indicates a strong 1:1 correlation in assay results, based on the slope of linear regression equations and R2 values for those regressions (Figure 8-10). Generally, slopes of close to one and R2 values close to one indicate a high level of precision for the 2021 results. Little skew is observed in the dataset and no significant differences were seen in duplicate results. Two duplicate pairs reporting Au and Ag show considerable low precision, which are believed to be caused by heterogeneous mineralization in quartered core pieces

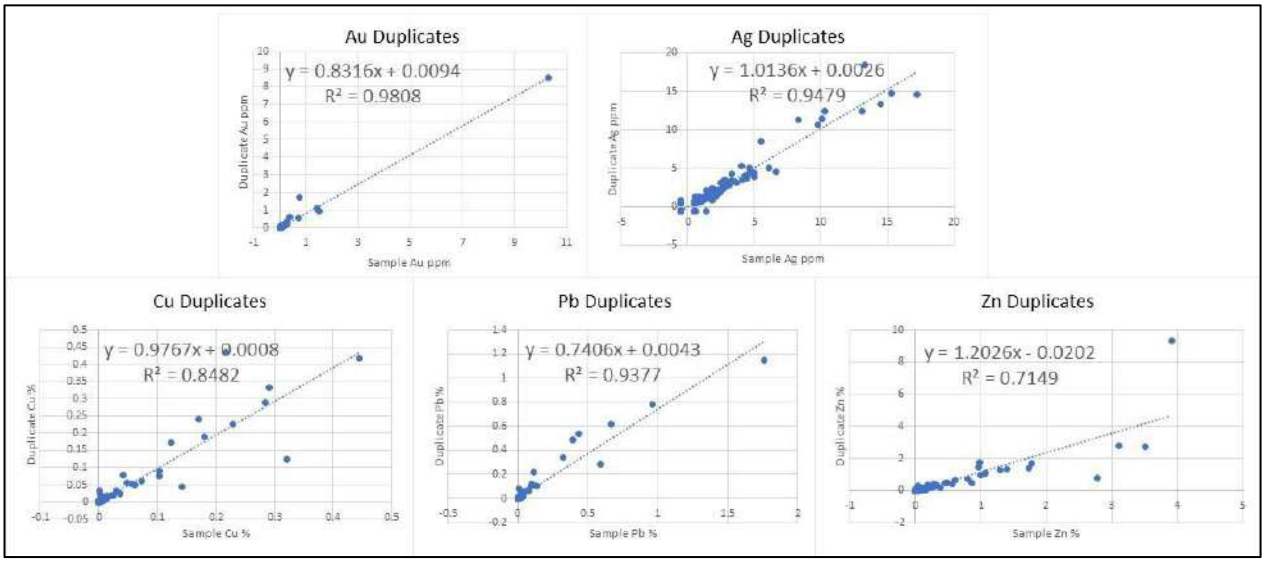


Figure 8-10 1:1 plots of duplicate assay pairs. Linear regression equations and R2 values are shown on the plots

9 DATA VERIFICATION

The Authors are confident that the resulting data was acquired using adequate quality control procedures that meet industry best practices for a drilling-stage exploration project, and the data are adequate for purposes of mineral resource estimation.

Exploration work completed by the Johnson Tract project team was conducted using documented procedures and involved detailed verification and validation of data prior to being considered for geological modelling and mineral resource estimation. During drilling, experienced geologists implemented best practices designed to ensure the reliability and trustworthiness of the exploration data. Other than not having some original historic assay certificates, there were no limitations on or failure by the Authors to conduct data verification.

The database used in the creation of the 2022 Johnson Tract mineral resource estimate was subjected to data verification protocols to ensure reliability of the dataset for estimation purposes. Data verification protocols were built into a customized version of a Geospark database, including eliminating data falling beyond end of hole (EOH); confirming ranges in lithologies, alteration, and mineralogy tables; and eliminating interval overlaps. Each category of the Geospark database has specific formats to ensure consistency in the quality of the data. External queries were built for checking for missing fields and assays. A selection of historic drill collars was resurveyed as part of the 2018 field program. During the same 2018 program, resampling significant intersections of historic core successfully replicated original assay results. Qualified staff compared 10% of the assays and downhole surveys in the resource database to original documentation to check for errors in data entry. Results of the data verification efforts indicate that the data from 2018 to 2021 field programs are of high quality and are suitable for resource estimation.

9.1 Site Visit

In Accordance with SK-1300 guidelines, the Authors visited the Johnson Tract Project on various occasions between September 2019 and August 2024. These visits were undertaken by James N. Gray, P.Geo and Dave Larimer, CPG on separate occasions.

The independent separate site visits from both Authors took place during active drilling. They independently reviewed and discussed all aspects that could materially impact the integrity of the data informing the mineral resource estimates for the Project (core logging, sampling, analytical results, and database management) with project staff. The Authors interviewed exploration staff to ascertain exploration and production procedures and protocols and examined drill core from selected holes to confirm that the logging information accurately reflected actual core.

9.2 Drillhole Database

Original drill logs for 10% of the Project drillholes were randomly selected and compared against the records in the database. No significant issues were noted and the lithology codes in the drill logs matched the records in the database.

Barry W. Smee, Ph.D., P.Geo of Smee and Associated Consulting Ltd. Was retained to perform an external audit of the Johnson Tract quality control data, in conjunction with the examination completed by Company staff (Smee, 2022). A selection of the most important drill hole analytical data was compared against ALS PDF assay certificates to verify that the data compilation was accurate. There were no discrepancies found between the analytical certificates and the database.

9.3 Drillhole Collar Surveys

The Authors independently reviewed the Company's drill collar location survey procedures, which included use of a Trimble DGPS and antenna to survey historic and J T Mining era drill holes. The Authors are confident that the Company has made best efforts to confirm all existing drillhole collar surveys and that the resulting data was acquired using adequate quality control procedures that generally meet industry standard practices for a drilling-stage exploration project, and the data are adequate for purposes of mineral resource estimation.

A total of 37 survey points were taken on the property over two days in September 2018 to identify any variance between the historic collar locations and present day using a survey-grade Trimble DGPS receiver and Zephyr antenna. Twenty-one of the points surveyed were of historic drill collars still visible on surface. A comparison of the historic surveys with the 2018 survey points shows the easting consistently varies by about 0.28 m and the northing consistently varies by about 2.52 m. This slight variance is considered acceptable given the terrain and difference in methodologies used during different exploration campaigns. Comparison of the old and new elevation data does show a consistent elevation difference of 4.5 m. The source of this discrepancy is thought to be due to a sea-level datum (high, median, or low tide) used for the historical surveys. The elevation data collected by J T Mining era staff are consistent with a recent airborne IFSAR survey completed across the region in 2016 by the Alaskan government.

9.4 Drillhole Downhole Surveys

The Authors independently reviewed the Company's procedures for downhole surveys and are confident that the Company has made best efforts to confirm all existing downhole surveys and resulting data were acquired using adequate quality control procedures that meet industry standard best practices for a drilling-stage exploration project, and the data are adequate for purposes of mineral resource estimation.

9.5 Drillhole Geological Logging

The Authors independently reviewed drill core from selected drillholes from each year's drill campaign and compared those against logged lithologies in the database. The lithologies were found to concur with the lithologic descriptions.

9.6 Drillhole Assays

An export of the database was provided to the Authors for auditing purposes, with particular emphasis on historical data. The audit consisted of checking the digital data against source documents to ensure proper data entry, as well as data integrity checks (checking for overlapping intervals, data beyond total depth of hole, unit conversion, etc.).

Original assay certificates were randomly selected for 10% of the Project drillholes and compared with the database. No significant data entry errors were found. Minor errors identified during this review were corrected in the master database and passed back to the Company. To date, not all the original assay certificates have been found and catalogued for historic drillholes within the main area of mineralization.

The 2018 resampling program included 293 quarter-core samples taken as duplicates of historic sample intervals. The 2018 samples were treated as check assays for the original results. Review of the data indicated a strong 1:1 correlation of assay values and a generally high level of precision (Figure 9-1).

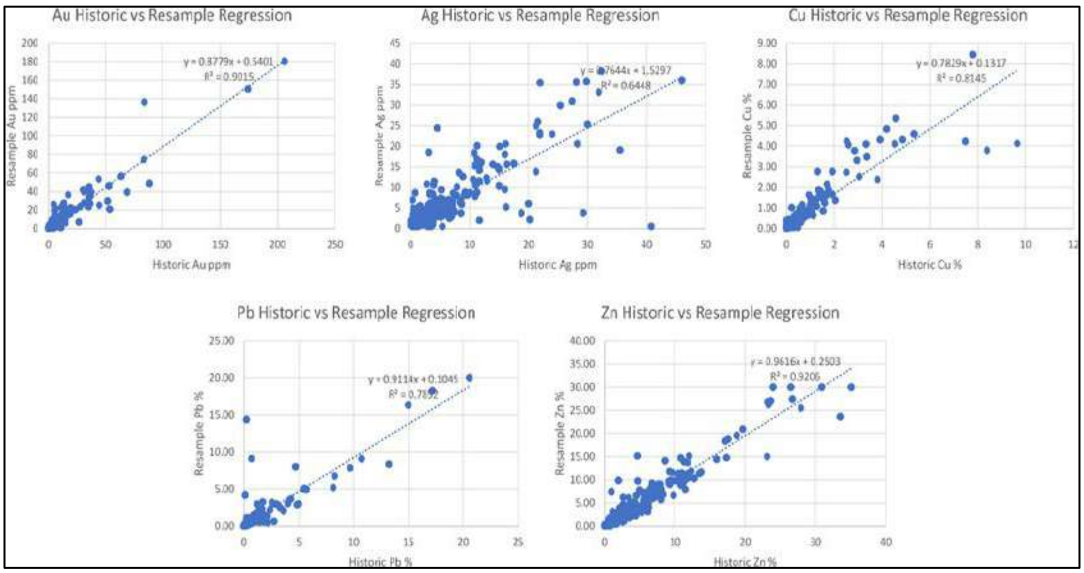


Figure 9-1 2018 Resampling Program – 1:1 plots of Historic vs. Resampled Assay Pairs

9.7 Analytical Quality Control Data

The Authors independently reviewed the available analytical quality control data provided for the Johnson Tract Project to confirm that the analytical results from the Project were reliable for informing mineral resource estimates. All data were provided to the Authors in Microsoft Excel format as both tabulated data and charts.

Barry W. Smee, Ph.D., P.Geo of Smee and Associated Consulting Ltd., was retained to perform an external audit of the Johnson Tract quality control data in conjunction with the examination completed Company staff (Smee, 2022). Recommendations were made to add additional base metal standards until the Project has its own material made into specific standards. Given the lack of check assays performed at a secondary laboratory, it was recommended that 3-4% of existing pulp samples within the expected resource envelope be selected and sent to a secondary laboratory for analysis.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

Metallurgical characterization of composite samples from the Johnson Tract Deposit has been carried out by Anaconda, Hazen, and Westmin historically, with the most recent phase of test work conducted at Blue Coast Research Ltd. (BCR) in 2021 and 2022 (Hall, 2022). Flowsheet development has focused primarily on the production of separate flotation concentrates for copper, zinc, and lead, and pyrite with the potential cyanidation of flotation concentrates and flotation tailings, to achieve additional gold recovery. The BCR test work program consisted of a comminution study, flotation optimization, mineralogical analysis, locked cycle testing, a limited cyanidation program, and variability test work.

10.1 Prior Metallurgical Testwork Programs (1983-1994)

10.1.1 Anaconda (1983 – 1985)

A test work program conducted by Anaconda focused on the production of a bulk copper-lead concentrate, followed by sequential flotation of a zinc concentrate. The flotation tails were then leached with cyanide. Total gold recovery reported by this program was 87.9% (combined recovery to a flotation concentrate plus cyanide leach of tails).

10.1.2 Hazen (1988)

This metallurgical test work program included flotation and cyanide leach test work conducted by Hazen Research, and mineralogical analysis conducted by C. Gasparrini (Shaw, 1988; Gasparrini, 1988). The Hazen test work reported gold recoveries up to 96.5% with a leach residence time of 36 hours.

10.1.3 Westmin/Brenda (1994)

The metallurgical test work program directed by Westmin, executed by Brenda Process Technology, was primarily conducted on a high gold, high base metal composite (Westmin, 1994). The flowsheet primarily focused on production of a bulk copper-lead-precious metal concentrate, followed by production of a zinc concentrate. Final flotation tails were forwarded to cyanide leaching for additional gold and silver recovery. The Westmin report indicated that a primary grind P80 (80% passing size) of 75 µm was required. Locked cycle testing was conducted to confirm flotation results and locked cycle tails were forwarded to cyanide leaching. Gold recoveries of >80% were reported to a copper-lead concentrate, and a cyanide gold extraction of 83% from the Lock Cycle Test (LCT) tails was reported. Comminution test work from this program determined the Bond Ball Work Index to be 16.8 kWh/t.

Separate copper and lead concentrates were not produced in this program. The report recommends that further work be conducted to produce separate concentrates, as well as to reduce zinc misplacement to the copper-lead circuit.

10.2 Blue Coast Research Metallurgical Testwork Program (2021-2022)

A metallurgical test program on split core samples from four drill holes from the Johnson Tract Deposit was initiated at Blue Coast Metallurgy and Research (BCR) in October 2021 (BCR, 2022). Selected sample intervals were used to form a single Master composite for characterization and metallurgical testwork. The objectives of the program were to:

- Characterize the mineralogy of the composite;
- Measure the hardness of the composite through standardized grindability testing;
- Further develop the sequential copper-lead-zinc flotation flowsheet applied in earlier test programs;
- Conduct locked-cycle flotation testing to evaluate final concentrate grades and recoveries; and,
- Evaluate potential additional gold recovery from flotation tailings streams by cyanidation.

In total, 20 batch flotation tests and one locked-cycle test were conducted, with the results used to develop a potential flowsheet for metal recovery.

10.2.1 Sampling and Composite Characterization

Samples for the program were collected by HighGold personnel from the 2021 drilling campaign. A master composite (JT21-MET001) was designed to reflect the average grade of the Johnson Tract Deposit and was comprised of ½ core sections of selected intervals from two drill holes (JT21-125 and JT21-134). The location of the drill holes, and the sub-intervals used to generate the composite, are presented in Figure 10-1

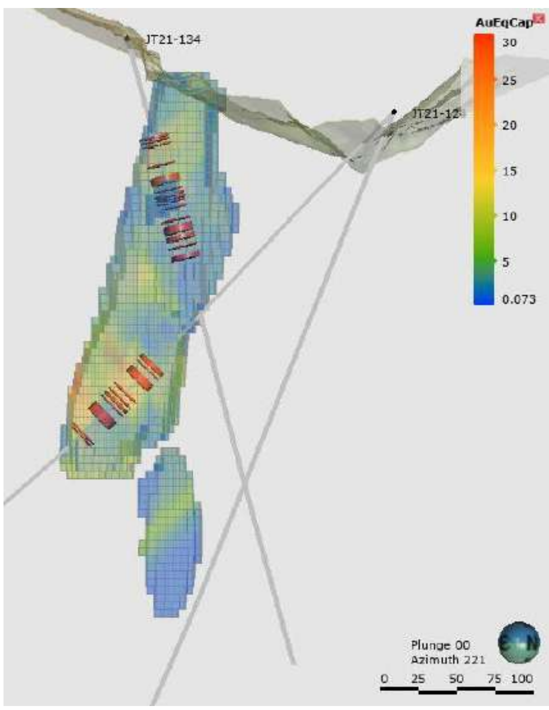


Figure 10-1 Selected Intervals for Master Composite JTMET-001

Chemical characterization of the master composite was performed at BCR. Gold was measured in triplicate by fire assay with a gravimetric finish. Silver, copper, lead, and zinc were assayed with a four-acid digest followed by an ICP finish. Total sulphur was assayed directly on an ELTRA Carbon-Sulphur analyzer. A summary of the measured head grades of the master composite is shown in Table 10-1.

Table 10-1 Johnson Tract Master Composite Head Assays

Composite		Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	S (%)
Method		FA-GRAV	4AD-ICP				ELTRA
JT21MET-001	Head A	11.75	6.18	0.52	1.27	5.13	6.14
	Head B	12.54					
	Head C	11.25					
	Average	**11.85**	**6.18**	**0.52**	**1.27**	**5.13**	**6.14**

10.2.2 Mineralogical Analysis

A subsample of the master composite was ground to a primary grind size of 80% passing 100 µm and submitted to Activation Laboratories for mineralogical analysis by QEMSCAN including modal mineralogy, liberation and association. Mineralogical analysis of the master composite indicated that:

- The primary sulfide minerals are sphalerite, pyrite, galena and chalcopyrite.
    - Chalcopyrite and sphalerite have higher liberation, at 77% and 81% liberated, respectively. (Note: liberated is defined as >90% surface exposure.)
    - Pyrite and galena have lower liberation, at 63% and 45% liberated, respectively.
    - A significant portion (28%) of the galena is associated with sphalerite or in ternary particles.
- The primary non-sulfide minerals are quartz, chlorite, calcite, and Si-Al clays.

10.2.3 Comminution Testwork

Comminution testwork was conducted on the master composite, including Bond Ball Work Index, Bond Abrasion Index, and SMC Testing. A summary of the comminution results is shown in Table 10-2.

Table 10-2 Grindability Results Summary

ID	BWI	Ai	DWi	DWi	M_{ia}	M_{ih}	M_{ic}	A x b	sg	ta	SCSE
	kWh/t	g	kWh/m³	%	kWh/t	kWh/t	kWh/t				kWh/t
JT21MET-001	16.6	0.352	3.7	15.0	12	7.9	4.1	73.7	2.7	0.71	7.63

Findings of the grindability testwork are as follows:

- Bond Ball Work Index testing was conducted with a closing size of 150 µm. The work index of 16.6 kWh/t indicates the sample is hard relative to the JKTech database.
- Bond Abrasion Index testing (subcontracted to SGS Burnaby) results indicated the sample is moderately abrasive relative to the SGS database.
- SMC testwork showed that this sample was soft with respect to impact breakage relative to the JKTech database.

10.2.4 Gravity Concentration

An Extended Gravity Recoverable Gold (E-GRG) test was conducted on the master composite to gain an understanding of the gravity response of gold. During the E-GRG test a 20 kg sample is passed through the Knelson MD-3 concentrator, with the tails of each subsequent gravity pass being ground successively finer. Target grind sizes for each pass are P90 of 850 µm, P80 of 250 µm and P80 75 µm. The cumulative gravity recoverable gold (GRG) was determined to be 26.5%, and was relatively fine and late liberating, with only 2.7% of the gold found in particles greater than 106 µm. The gravity recoverable gold by size fraction is shown in Figure 10-2. This Gravity Recoverable Gold (GRG) test work tends to indicate that gravity processes are likely not required to increase overall gold recovery in a traditional flotation process.

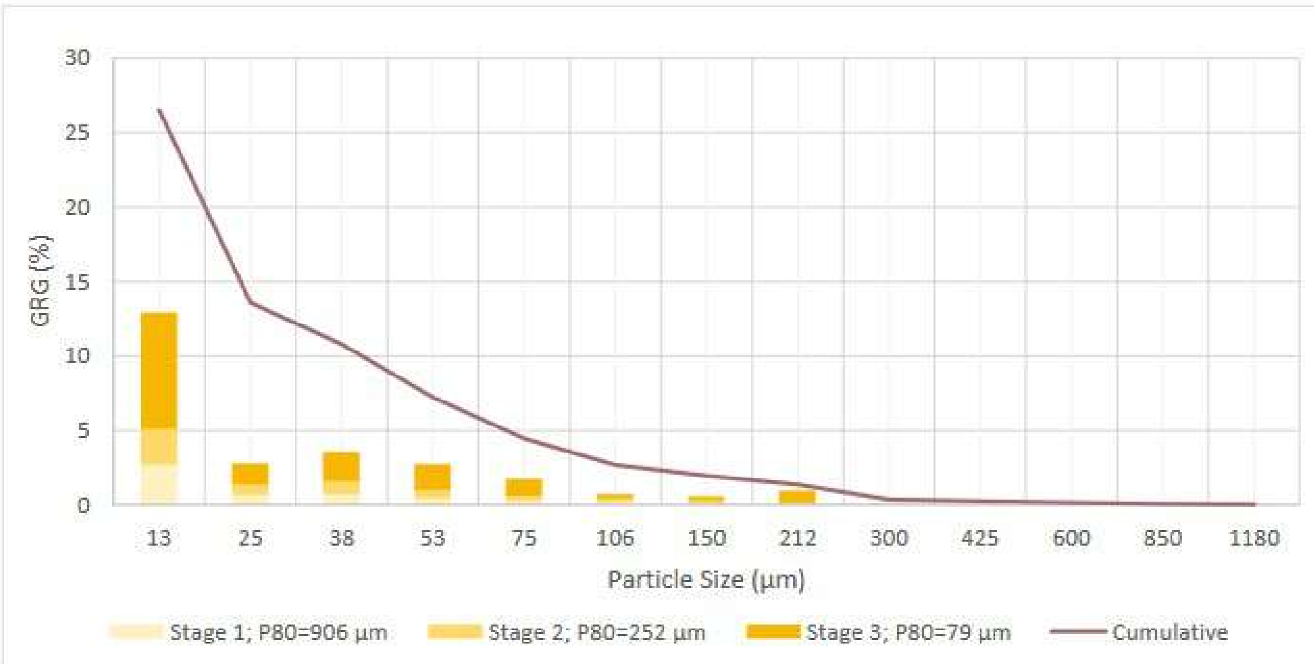


Figure 10-2 Johnson Tract Gravity Recoverable Gold by Size Fraction

10.2.5 Flotation Testwork & Locked Cycle Testing

Flotation optimization test work was conducted on the master composite in a series of 20 flotation tests. The parameters explored included primary grind, flotation kinetics, lead and zinc depressants, lead regrind, gold/pyrite circuit, and an MF2 (Mill-Float x 2) flowsheet. The initial test work conditions utilized a conventional copper, lead, zinc flowsheet. In the final series of optimization tests, a pyrite/gold circuit was added to increase gold recovery with the production of a gold-bearing pyrite concentrate. The best flotation conditions to generate separate concentrates for copper, lead, zinc, and pyrite (gold) was taken to a locked cycle test to confirm metallurgical performance.

Key findings of the flotation program are as follows:

- A primary grind P80 of 125 µm, combined with Sodium Metabisulfite (SMBS) and $ZnSO_4$/NaCN as depressants, provided good selectivity between sulfide minerals.
- Saleable grades of copper, lead, and zinc flotation concentrates were achieved after regrinding (Cu and Pb only) and 1-2 stages of dilution cleaning.
- Gold was found to report primarily to the copper and lead concentrates;

- Additional gold units can be recovered to a separate pyrite concentrate, however a secondary grind (to a P80 of 55µm) on the Zn rougher tails is required to liberate the majority of the pyrite; and
- A pyrite concentrate grading 64 g/t Au and 33.3% S, and representing 18.5% Au recovery, was generated from the base metal flotation tailings
- This flowsheet was chosen for the good selectivity between copper, lead, and zinc at a primary grind size P80 of 125 µm.

A locked cycle test was conducted as a standard six-cycle test. The copper, lead, and zinc circuits were conducted on all six cycles and the gold circuit was added to cycles 5 and 6. The pyrite circuit consists of a secondary grind, followed by pyrite rougher flotation, re-grinding, and one stage of cleaner flotation to produce a pyrite concentrate with approximately 18.5 percent of the overall gold. Table 10-3 shows the metallurgy accounting for the locked cycle test based on cycles 5 and 6. A schematic of the test flowsheet is presented in Figure 10-3.

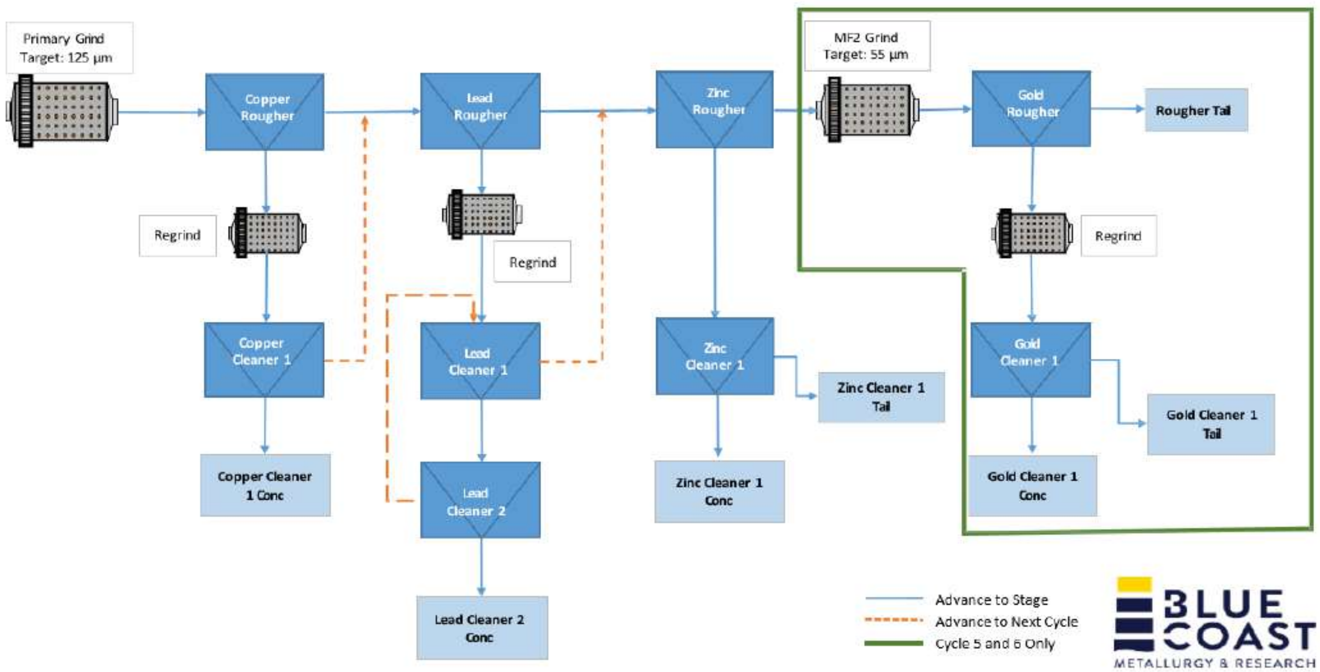


Figure 10-3 LCT-1 Flowsheet

Table 10-3 LCT-1 Projected Metallurgy Based on Cycles 5-6

Product	Weight (%)	Assays						% Distribution					
		Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	S (%)	Au	Ag	Cu	Pb	Zn	S
Cu Cln. 1 Conc	1.47	276	71	30.6	2.11	3.94	33.4	32.7	15.3	84.5	2.4	1.1	8.7
Pb Cln. 2 Conc	1.51	220	95	1.42	62.1	15.1	18.1	26.9	21.1	4.0	72.4	4.3	4.9
Zn Cln. 1 Conc	9.30	10.4	26	0.31	2.85	52.6	31.9	7.8	35.5	5.5	20.4	92.3	52.7
Zn Cln. 1 Tail	2.63	7.64	7	0.21	0.35	0.77	9.15	1.6	2.5	1.1	0.7	0.4	4.3
Au Cln. 1 Conc	3.56	64.3	24	0.38	0.70	1.52	33.3	18.5	12.4	2.6	1.9	1.0	21.1
Au Cln. 1 Tail	7.95	2.17	2	0.04	0.08	0.10	1.49	1.4	2.2	0.6	0.5	0.1	2.1
Rougher Tail	73.6	1.85	1	0.01	0.03	0.05	0.48	11.0	11.0	1.8	1.7	0.7	6.2
Calc. Head	100.0	12.4	7	0.53	1.30	5.29	5.62	100	100	100	100	100	100

Minor element assays were conducted on the final concentrates from the locked cycle test, with the results presented in Table 10-4.

Table 10-4 LCT-1 Concentrate Minor Element Analysis

Element	Units	Cu Cln 1 Con	Pb Cln 2 Con	Zn Cln 2 Con	Au Cln 1 Con
Hg	ppb	279	496	985	314
Cl	%	<0.01	<0.01	<0.01	<0.01
F	%	0	<0.01	<0.01	0
Al	%	0.129	0.114	0.323	1.751
As	ppm	63	27	133	903
Ba	ppm	14	10	43	115
Be	ppm	<0.2	<0.2	<0.2	0
Bi	ppm	<2	<2	<2	<2
Ca	%	0.055	0.037	0.193	0.404
Cd	ppm	162	611	2218	47
Co	ppm	6	9	27	139
Cr	ppm	17	19	261	1913
Fe	%	31	2	7	36
K	%	0	<0.01	0	0
Li	ppm	<2	<2	<2	<2
Mg	%	0.069	0.046	0.203	0.933
Mn	ppm	71	64	411	1029
Mo	ppm	29	81	37	171
Na	%	<0.01	0.02	<0.01	0.02
Nb	ppm	<10	<10	<10	<10
Ni	ppm	3	<1	214	1793
P	%	< 0.002	< 0.002	< 0.002	< 0.002
Rb	ppm	21	26	<20	30
Sb	ppm	13	51	39	73
Se	ppm	228	134	93	82
Sn	ppm	16	37	12	<10
Sr	ppm	1	2	3	9
Ta	ppm	<10	<10	<10	<10
Te	ppm	<10	<10	<10	<10
Ti	%	0.023	0.015	0.040	0.219
Tl	ppm	<2	<2	5	39
V	ppm	<1	<1	<1	<1
W	ppm	<10	<10	<10	<10
Zr	ppm	11	<4	7	32

Three cyanidation tests were conducted on products from the flotation program. Two tests were conducted on the Cycle 6 Rougher Tails, and Cycle 5 and 6 Gold Cleaner Concentrate. The gold recovery from the rougher tails and pyrite concentrate by cyanidation was 81%, and 93% respectively. A summary of the overall gold recovery is shown in Table 10-5.

Table 10-5 Estimated Overall Gold Recovery

Product	Assays Au (g/t)	CN Leach Extraction (%)	Overall Au Recovery (%)
Cu Final Conc	276	n/a	32.7
Pb Final Conc	220	n/a	26.9
Zn Final Conc	10	n/a	7.8
Au Final Conc	64.3	n/a	18.5
Zn Cleaner 1 Tail + Au Cleaner 1 Tail (CN)	3.5	81*	2.5
Rougher Tail (CN)	1.85	81	8.9
Combined Au Recovery with CN			**97.3**

**Estimated based on Rougher Tail CN Recovery*

The results suggest for the master composite, approximately 86 percent of the gold could be recovered to the base metal flotation concentrates, with a further 11 percent of the gold recovered by cyanidation of tailings products. Gold grade of the zinc concentrate is at a level to be considered payable.

10.2.6 Variability Testing

Variability test work was completed on six spatially discrete variability composites that represented a range of grades. Each composite was crushed to 100% passing -10 mesh. The composites were homogenized in a rotary splitter, subsamples, for head assay, and split into replicate test work charges. Chemical characterization of each composited was performed at BCR. Gold was measured in triplicate by fire assay with gravimetric finish (or AA finish on low gold composites). Silver, copper, lead, and zinc were assayed with a four-acid digest followed by an ICP finish. Total sulfur was assayed directly via combustion IR on an ELTRA Carbon-Sulphur analyzer. A summary of the measured head grades is shown in Table 10-6.

Table 10-6 Johnson Tract Variability Head Assays

Composite	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	S (%)
Method	FA-GRAV/AA	4AD-ICP				ELTRA
VC-1	0.28	51.49	2.94	0.05	0.22	9.49
VC-2	0.02	9.87	0.98	0.04	0.23	4.65
VC-3	1.35	3.35	0.68	0.35	1.63	3.63
VC-4	32.80	3.67	0.21	0.11	1.71	3.23
VC-5	1.61	4.21	0.48	0.42	1.57	3.29
VC-6	8.10	11.72	0.35	3.89	6.75	6.32

The flotation flowsheet developed on the master composite was tested using each of the six variability composites. The initial round of flotation tests performed well in response to the master composite flowsheet; minor adjustments to the reagent schemes were made to improve performance for a second round of test work for each variability composite.

Table 10-7 shows the results of flotation testing for each variability sample. Overall gold recovery was high for all samples, in the range of 90 to 97 percent when considering recovery to base metal concentrate, pyrite concentrate and leaching of flotation tailings. The variability testing also indicated that significant variation in payable gold is expected within base metal concentrates, when base metal grades change significantly. The variability test work tended to confirm the selected flowsheet option is appropriate for the Project and "on-average" the variability results look similar to the composite sample.

Table 10-7 Overall Gold Recovery on Variability Composites

Test ID	Concentrate Au Recovery (%)	Leached Tails CN Recovery (%)*	Total Au Recovery (%)
LCT-1; JT21-MET001	85.9	11.4	97.3
F-23; VC-3	89.1	8.4	97.5
F-24; VC-4	80.8	15.6	96.3
F-25; VC-5	78.7	15.5	94.2
F-26; VC-6	76.2	14.3	90.5
F-29; VC-3	85.6	7.8	93.4
F-30; VC-4	69.9	21.8	91.8
F-31; VC-5	76.5	16.9	93.4
F-32; VC-6	82.7	12.5	95.3

**Zn Cln 1 Tails, Au Cln 1 Tails, Rougher Tails - Estimated based on Rougher Tail CN Recovery*

10.3 Ore Sorting

Ore sorting can be an effective way to reduce the amount of material processed, while maintaining a high recovery of payable metals. Given the expected high-cost of shipping material for processing, the Johnson Tract project may be a good candidate for ore-sorting of mine production and testing is recommended for the Project.
Ore sorting is a sensor-based technology that involves using multiple sensors, i.e., x-ray fluorescence – XRF, x-ray transmission – XRT, and optical sensors/lasers that are well suited to the detection of ore by using color (for example, copper oxide or crystalline structures in quartz). The entire ore sorting line can be planned in semi-mobile forms and consists only of crushers, screens, belts and sorting machines. This allows immense cost savings for transport since the waste material is pre-sorted prior to transportation (Steinert: www.steinertgobal.com).

10.4 Conclusions

Metallurgical testing of a composite sample from the Johnson Tract Deposit has resulted in the following results and conclusions:

- Quantitative mineralogy by QEMSCAN indicated that at an eighty percent passing size(P80) of 100 µm chalcopyrite and sphalerite were well-liberated, whereas galena and pyrite were moderately liberated.
- Grindability testing indicated that the Master Composite was moderately hard in terms of Bond Ball Work Index and moderately abrasive.
- The Johnson Tract Composite contains a component of gravity recoverable gold, but this gold

requires finer grinding to achieve liberation; therefore, gravity processing is not currently recommended for the Project to increase gold recoveries.

- Flotation test work using a traditional selective flotation process can produce good grades of copper, lead and zinc concentrates, at good base metal recoveries.

The majority of the contained gold in the Master Composite reported to the final copper and lead concentrates, and to a lesser extent, the zinc concentrate. Additional gold recovery was realized in two ways:

- By regrinding of the zinc rougher tailings and flotation to produce a pyrite concentrate grading 64 g/t Au.
- Through cyanidation of the flotation tailings to achieve a further 11% gold extraction.

10.5 Recommendations

Based on the work conducted to date, the following additional testwork is recommended:

- Further grindability testing on domain and variability composites from the Johnson Tract Deposit.
- Evaluate the response of domain and variability composites to the process flowsheet developed in the BCR program.
- Conduct further test work to increase recovery to lead concentrate and reduce zinc misplacement to the lead concentrate.
- Confirm cyanidation recovery on the combined cleaner tailings (Zn 1st cleaner tailings, Au 1st cleaner tailings)
- Gold focused mineralogy including a trace mineral search (TMS) and D-SIMS to evaluate the association of gold with sulfide minerals.
- Given the expected high-cost of shipping material for processing, the Johnson Tract project may be a good candidate for ore-sorting of mine production and testing is recommended for the Project.

11 MINERAL RESOURCE ESTIMATES

11.1 Introduction

The mineral resource estimate documented herein is an update of the initial Johnson Tract Deposit (the Deposit) Resource dated June 15th, 2020. The initial estimate used data from 52 NQ and HQ sized diamond drill holes (15,930 m; 52,263 ft.) in generating the geological model for the Deposit, 37 of which intersected the interpreted mineralized zones in 3,394 m (11,135 ft.) of core with a total of 2,239 assays inside the mineralized solids.

New geologic domains were created using Seequent Leapfrog Geo® software by Nathan Steeves, PhD, J T Mining – Chief Exploration Geologist, and reviewed by Ian Cunningham-Dunlop, P.Eng., J T Mining – Senior Vice President, Exploration and Author James N. Gray, P.Geo.

Gold, silver, copper, lead and zinc grades were estimated using Geovia GEMS® software within interpreted mineralized zones. The largest of these, the Johnson domain, contained a sufficient number of samples to allow meaningful spatial analysis and grades were estimated by ordinary kriging. Grades in the other, smaller domains were estimated by inverse distance weighting. Drill density of the Johnson domain is high, allowing the declaration of an Indicated Mineral Resource in that zone. All other estimated mineralized material has been classified as Inferred.

11.2 Available Drill Data and Model Setup

This Johnson Tract Deposit resource estimate is based on assay data available as of April 6th, 2022. A total of 120 NQ and HQ sized diamond drill holes (42,575m; 139,678 ft.) were used to generate the new geological model for the Deposit, 75 of which intersected the interpreted mineralized zones in 7,633 m (25,042 ft.) of core with a total of 5,078 assays inside the mineralized solids.

Figure 11-1 illustrates drill hole locations, the extents of the resource block model and the interpreted zones of mineralization. Table 11-1 lists the Johnson Tract block model setup.

A total of 63 new holes (26,728 m; 87,690 ft.) have been completed at the Deposit by J T Mining since the initial 2020 resource, including 52 new holes (20,256 m; 66,457 ft.) used in the geologic model and 29 holes (12,704 m; 41,680 ft.) that intersect the resource domains. Additional holes by previous operators along strike to the northeast were also used in generating the new geological model and subsequent resource estimate.

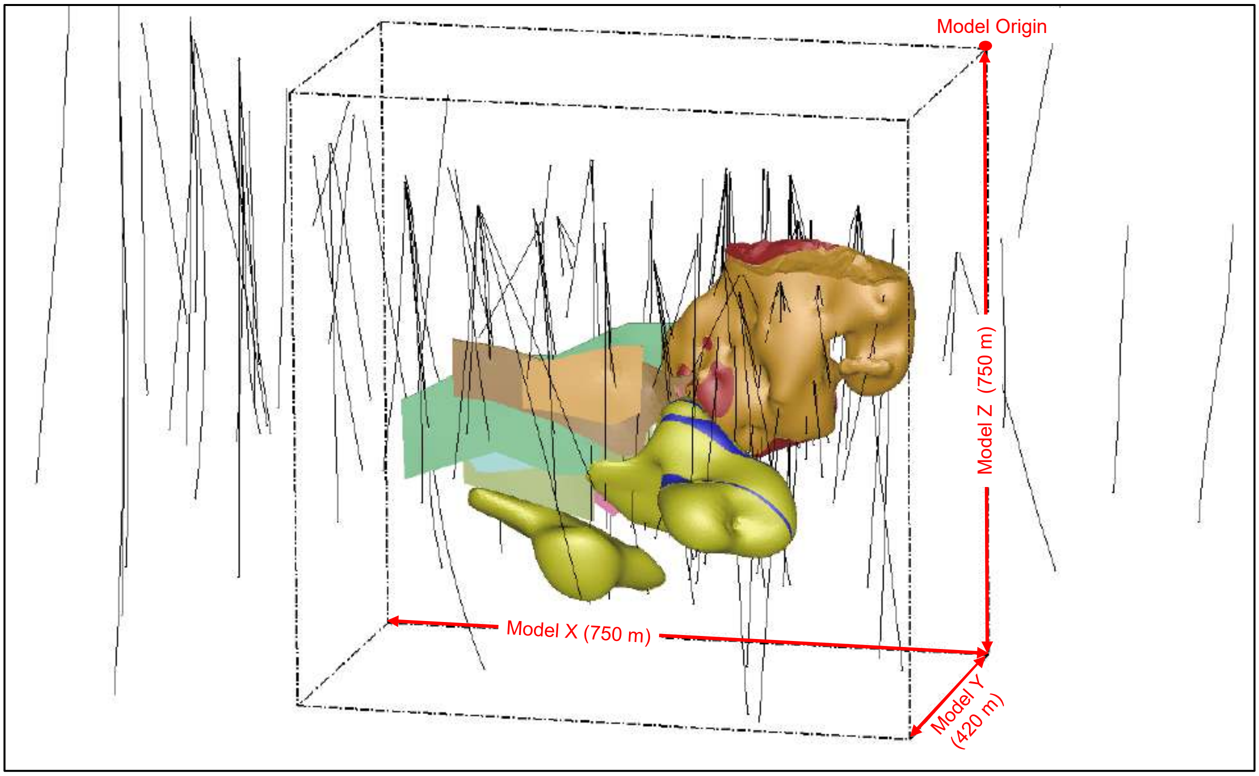


Figure 11-1 Johnson Tract Drilling, Mineralized Zones and Block Model Extents (view to ESE)

Table 11-1 Block Model Setup

Block:	X	Y	Z
origin(1)	502,660	6,664,600	750
size (m)	6	6	6
no.blocks	125	70	125
45° counter-clockw ise rotation about origin; 1,093,750 blocks			
(1) SW model top, block edge			

11.3 Geologic Model

Modeled domains include the Johnson Tract Deposit domain (JT domain), the Footwall Copper Zone (FCZ) domain, and the Johnson Tract Extension (JT Ext) domain. The JT and FCZ domains are subdivided into 'higher grade' (JT HG and FCZ HG) and 'lower grade' (JT LG and FCZ LG) subdomains. Along strike to the northeast, the JT Ext domain consists of six distinct thin tabular wireframes (see Figure 11-2).

The domains were created using Leapfrog Geo's Intrusion and Vein modeling tools. The domains are controlled foremost by geology to include significant mineralized, silicified, and veined rock. Domain extents are limited to material that can be correlated within geologically continuous, definable zones. Wireframes are snapped to sample intervals or to logged lithologic intervals where no samples exist. Where not constrained by drilling or faulting, domains were extended approximately 25 m from a drill hole, except where geology supports extension between holes in the trend of mineralization.

The majority of the mineral resource is contained within the JT HG domain (Figure 11-2 (b) and (c)). The JT HG domain consists of a single solid that is a steeply dipping, 25 to 70 m (82 to 233 ft.) thick, and extends 125 to 200 m (410 to 656 ft.) along strike and 250 m (820 ft.) vertically, with a moderate to steep plunge to the northeast. This domain was defined using logged heavily veined and brecciated silicified intervals and refined using a 2 g/t AuEq cut-off. The volume includes any internal waste that would likely be mined. The Leapfrog Geo Indicator Interpolant and the Economic Composite tools were also used as guides at a 3 g/t AuEq cut-off.

The JT HG domain is surrounded by the lower grade JT LG domain (Figure 11-2 (b)). This domain represents a lower-grade alteration halo and was defined using logged alteration and a 0.5 g/t AuEq cut-off as a guide. The domain includes mostly silicified rock but includes outboard anhydrite and sericite-altered intervals.

The JT Ext domain captures silicified and mineralized zones extending to the northeast along strike and down-plunge in a sparsely drilled portion of the Johnson Tract Deposit (Figure 11-2 (d)). This domain is made up of six steeply southeast-dipping tabular solids with a similar orientation to the main JT HG and LG domains. These volumes are interpreted to be mineralized structures fingering to the northeast off the main JT domains. This domain is sparsely drilled, and care was taken to correlate, and wireframe similar zones of mineralization based on alteration, mineralogy, and structural interpretation. In places, these wireframes are extended up to 50 m (164 ft.) from drill intercepts.

A texturally and mineralogically distinct, relatively copper-rich zone underlies the JT domains and is composed of the FCZ HG and FCZ LG domains (Figure 11-2 I and (f)). These domains are relatively Cu-Ag-rich compared to the more Au-Zn-Cu-rich JT domains. The FCZ HG domain consists of three moderately southeast dipping tabular solids of higher Cu-Ag grades. A 2 ppm AuEq and 0.3% Cu cut-off was used as a reference guide to model the FCZ HG domain. Contiguous lower grade around these zones was captured and modeled as two volumes. One of these is cut by the three FCZ HG solids, forming a total of five FCZ LG solids.

Two significant fault zones were modeled and constrain resource domains. The 5 to 10 m (16 to 33 ft.) thick, steeply southeast-dipping Dacite fault zone truncates the JT HG and JT LG domains to the southeast. The Dacite fault zone is interpreted to have had, in part, east-side down offset of at least 100 m (328 ft.) and an unknown lateral offset distance and direction. Locally, the Dacite fault zone contains mineralized wallrock. The upper extents of the JT Ext domain are constrained by the moderately northwest-dipping Saddle Fault zone. This fault is not modeled near the JT domains, further south. The Saddle fault is interpreted to have in part reverse oblique displacement. Offset distance is unknown.

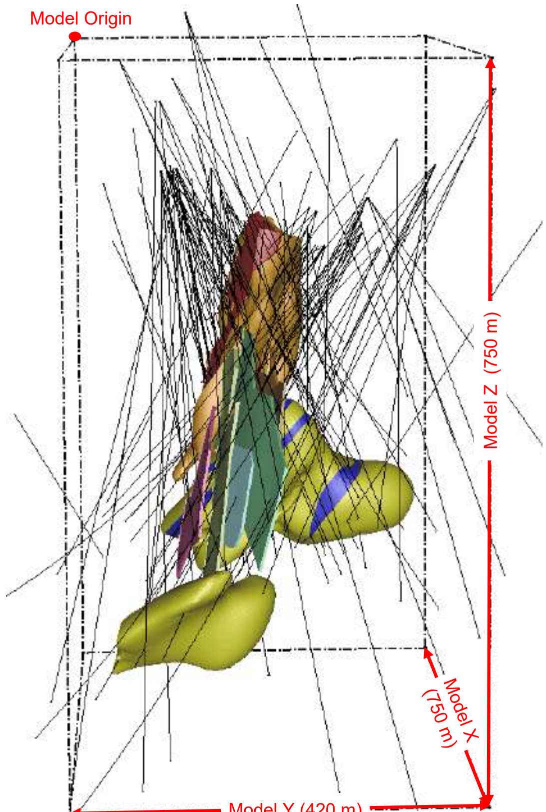


Figure 11-2 (a)

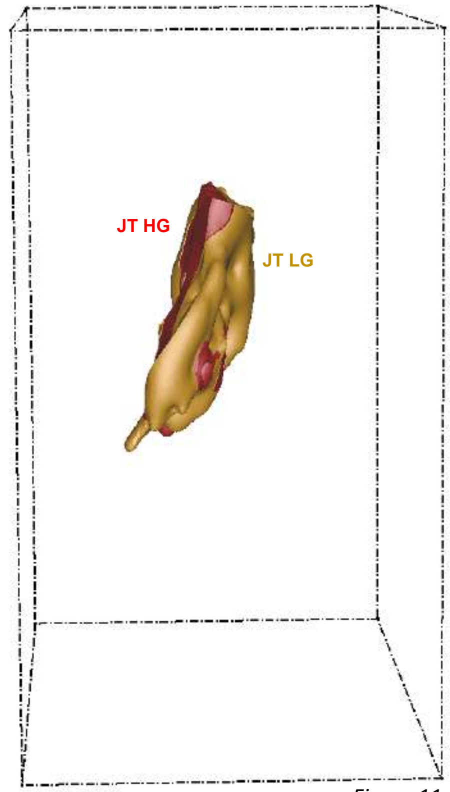


Figure 11-2 (b)

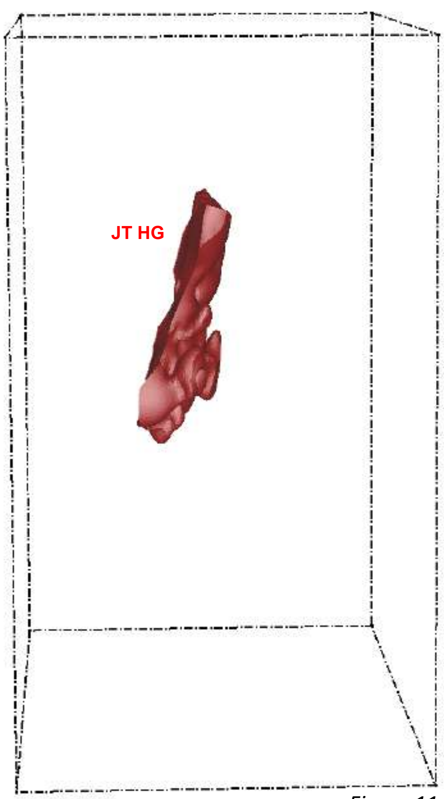


Figure 11-2 (c)

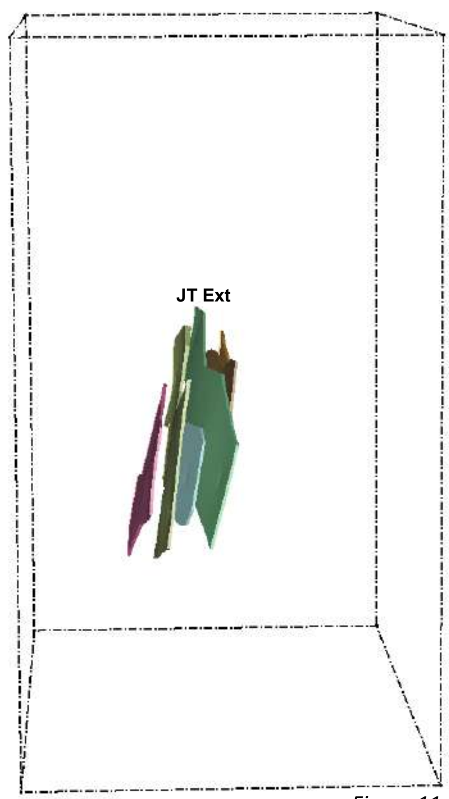


Figure 11-2 (d)

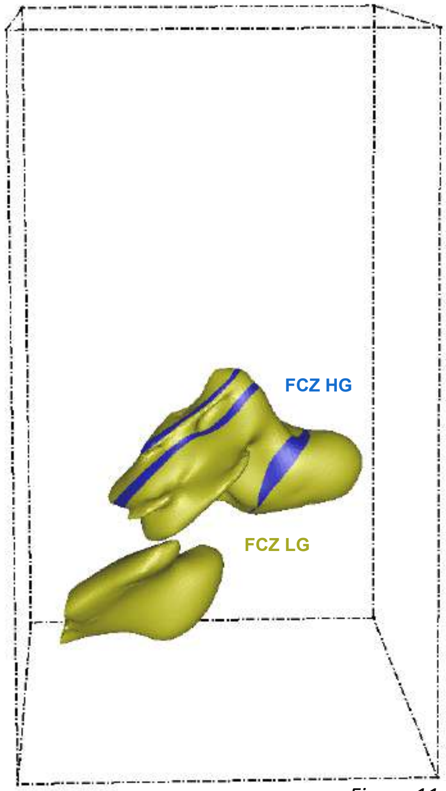


Figure 11-2 (e)

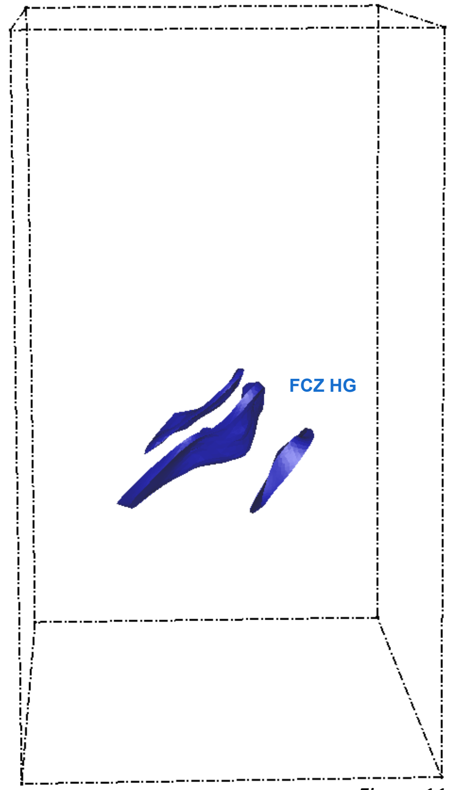


Figure 11-2 (f)

Figure 11-2 Johnson Tract Drilling, Mineralized Zones and Block Model Extents (view to SW)

All domain solids are constrained by a topographic surface created using high-resolution photogrammetry and validated by ground control points and collar locations. Collars and control points were collected using a Trimble R2 GNSS device and typically have <10 cm accuracy.

Table 11-2 lists the volumes of the interpreted zones and supporting drilling; since holes may intersect more than one of the zones tabled below, there is no total on the number of holes column, as that number would be misleading. Partial block modeling was used to accurately account for domain volume and corresponding estimated grades. Whole block values were calculated as the weighted percentage volume/grade of individual domains.

Table 11-2 Geologic Model Volume and Support

Mineralized Solid			Volume (m^3) (1,000s)	No. Holes	Intersection Length (m)
JT LG	11	JT LG Zone	2,003	47	2,559
JT HG	12	JT HG Zone	1,446	43	2,516
JT Ext	111	JT NE Vein1	32	3	10
	112	JT NE Vein2	73	7	53
	113	JT NE Vein3	123	7	98
	114	JT NE Vein4	25	1	4
	115	JT NE Vein5	153	8	80
	116	JT NE Vein6	86	5	46
FCZ LG	211	Cu LG Zone 1	42	8	59
	212	Cu LG Zone 2	392	19	324
	213	Cu LG Zone 3	1,551	20	843
	214	Cu LG Zone 4	597	5	255
	215	Cu LG Zone 5	1,277	5	289
FCZ HG	221	Cu HG Zone 1	64	10	105
	222	Cu HG Zone 2	402	17	328
	223	Cu HG Zone 3	95	6	64
		Total:	8,362		7,633

11.4 Grade Capping

Grade capping is used to control the impact of extreme, outlier high-grade samples on the overall resource estimate. Assay histograms and probability plots were examined to determine levels at which values are deemed outliers to the general population, an example plot for gold in the Johnson Domain is shown in Figure 11-3. Cap values were applied by metal and for each mineralized zone prior to compositing. Capping levels are listed in Table 11-3.

The impact of grade capping can be measured by comparing uncapped and capped estimated grades above a zero cut-off. Metal removed through capping amounts to 8.4% Au, 10.1% Ag, 2.8% Cu, 6.2% Pb and 1.3% Zn.

Table 11-3 Grade Capping Levels

Mineralized Solid			Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
JT LG	11	JT LG Zone	3.5	30	2	1.2	22
JT HG	12	JT HG Zone	110	70	5.3	21	35
JT Ext	111	JT NE Vein1	*uncap*	*uncap*	1.2	*uncap*	*uncap*
	112	JT NE Vein2	8	30	1.2	*uncap*	*uncap*
	113	JT NE Vein3	8	30	*uncap*	1.2	*uncap*
	114	JT NE Vein4	*uncap*	*uncap*	*uncap*	*uncap*	*uncap*
	115	JT NE Vein5	*uncap*	*uncap*	1.2	1.2	22
	116	JT NE Vein6	*uncap*	*uncap*	*uncap*	1.2	*uncap*
FCZ LG	211	Cu LG Zone 1	1.4	55	*uncap*	0.4	5
	212	Cu LG Zone 2	1.4	*uncap*	*uncap*	0.4	5
	213	Cu LG Zone 3	1.4	*uncap*	*uncap*	0.4	5
	214	Cu LG Zone 4	*uncap*	*uncap*	*uncap*	*uncap*	*uncap*
	215	Cu LG Zone 5	0.15	55	3	0.4	5
FCZ HG	221	Cu HG Zone 1	1.5	*uncap*	*uncap*	0.4	8.5
	222	Cu HG Zone 2	1.5	*uncap*	6.2	0.4	8.5
	223	Cu HG Zone 3	*uncap*	*uncap*	*uncap*	0.4	*uncap*

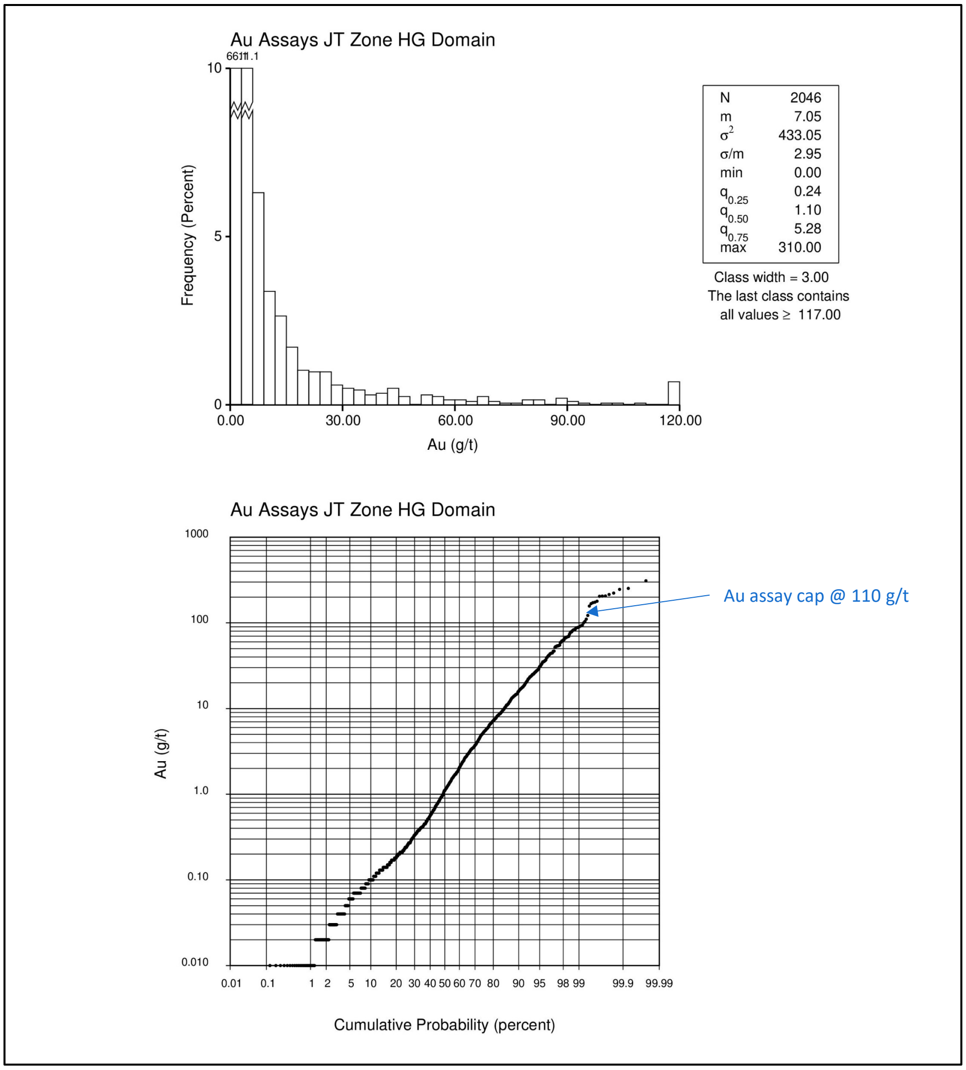


Figure 11-3 Example Histogram & Probability Plot: JT HG Domain – Au Assays

11.5 Assay Compositing

Assays were composited to a target length of 1.5 m within the bounds of the mineralized wireframes. A 1.5 m composite length was chosen since that was the dominant sample length for assays for nearly all the different campaigns of drilling within most mineralized solids.

Compositing to a constant length within mineralized solids would result in the generation of shorter-length intervals at the down-hole edge of the solids; less than half-length (0.75 m in this case) samples would commonly be discarded prior to grade estimation. For this estimate, composite lengths across solid intersections were calculated such that they were equal, and as close to 1.5 m as possible. This technique resulted in composite lengths ranging between 0.8 and 2.1 m and, most importantly, makes use of all sampled material in the interpreted mineralized zones. Capped and uncapped composite statistics are presented in Table 11-4. (CV=coefficient of variation, standard deviation ÷ mean).

Table 11-4 Composite Grade Statistics

Mineralized Solid			Au (g/t) Count	mean	max.	CV	AuCap (g/t) #Cap	mean	max.	CV
JT LG	11	JT LG Zone	1,707	0.17	10.83	2.5	6	0.16	3.47	1.9
JT HG	12	JT HG Zone	1,679	6.50	255.64	2.7	24	5.96	110.00	2.2
JT Ext	111	JT NE Vein1	7	0.37	0.78	0.8	0	0.37	0.78	0.8
	112	JT NE Vein2	36	0.46	10.05	3.9	1	0.40	8.00	3.6
	113	JT NE Vein3	65	0.65	25.07	5.2	2	0.32	8.00	4.3
	114	JT NE Vein4	3	0.05	0.09	0.7	0	0.05	0.09	0.7
	115	JT NE Vein5	53	0.25	2.03	1.5	0	0.25	2.03	1.5
	116	JT NE Vein6	30	1.25	7.57	1.6	0	1.25	7.57	1.6
FCZ LG	211	Cu LG Zone 1	40	0.22	4.76	3.5	3	0.11	1.40	2.2
	212	Cu LG Zone 2	217	0.07	1.09	1.5	2	0.07	1.09	1.5
	213	Cu LG Zone 3	562	0.10	6.27	3.5	6	0.08	1.15	1.7
	214	Cu LG Zone 4	171	0.04	0.17	0.7	0	0.04	0.17	0.7
	215	Cu LG Zone 5	192	0.07	2.56	4.0	5	0.03	0.15	1.0
FCZ HG	221	Cu HG Zone 1	71	0.30	12.75	5.1	3	0.12	1.50	2.2
	222	Cu HG Zone 2	219	0.15	3.04	2.0	9	0.14	1.50	1.6
	223	Cu HG Zone 3	43	0.05	0.15	0.5	0	0.05	0.15	0.5

Mineralized Solid			Ag (g/t) Count	mean	max.	CV	AgCap (g/t) #Cap	mean	max.	CV
JT LG	11	JT LG Zone	1,707	2.5	99.9	1.7	8	2.5	28.0	1.3
JT HG	12	JT HG Zone	1,679	6.8	401.4	2.6	7	6.1	70.0	1.2
JT Ext	111	JT NE Vein1	7	15.7	28.7	0.6	0	15.7	28.7	0.6
	112	JT NE Vein2	36	11.6	72.9	1.3	3	9.8	30.0	1.0
	113	JT NE Vein3	65	9.8	285.8	4.5	3	2.0	30.0	3.1
	114	JT NE Vein4	3	1.4	2.8	0.9	0	1.4	2.8	0.9
	115	JT NE Vein5	53	1.4	5.0	0.9	0	1.4	5.0	0.9
	116	JT NE Vein6	30	1.9	13.5	1.6	0	1.9	13.5	1.6
FCZ LG	211	Cu LG Zone 1	40	6.8	62.6	1.8	2	6.1	46.2	1.6
	212	Cu LG Zone 2	217	3.1	36.7	1.3	0	3.1	36.7	1.3
	213	Cu LG Zone 3	562	3.3	32.5	1.4	0	3.3	32.5	1.4
	214	Cu LG Zone 4	171	2.6	23.3	1.2	0	2.6	23.3	1.2
	215	Cu LG Zone 5	192	4.6	119.3	2.2	2	4.2	52.8	1.6
FCZ HG	221	Cu HG Zone 1	71	14.7	97.4	1.2	0	14.7	97.4	1.2
	222	Cu HG Zone 2	219	14.5	131.0	1.4	0	14.5	131.0	1.4
	223	Cu HG Zone 3	43	14.6	82.0	1.1	0	14.6	82.0	1.1

Mineralized Solid			Cu (%)				CuCap (%)			
			Count	mean	max.	CV	#Cap	mean	max.	CV
JT LG	11	JT LG Zone	1,707	0.08	2.48	2.6	13	0.08	2.00	2.5
JT HG	12	JT HG Zone	1,679	0.56	7.96	1.3	15	0.55	5.30	1.2
JT Ext	111	JT NE Vein1	7	0.60	3.41	2.1	1	0.28	1.20	1.6
	112	JT NE Vein2	36	0.31	1.23	1.2	2	0.31	1.17	1.2
	113	JT NE Vein3	65	0.07	0.58	1.5	0	0.07	0.58	1.5
	114	JT NE Vein4	3	0.24	0.65	1.5	0	0.24	0.65	1.5
	115	JT NE Vein5	53	0.19	1.48	1.3	2	0.18	1.17	1.2
	116	JT NE Vein6	30	0.04	0.19	1.3	0	0.04	0.19	1.3
FCZ LG	211	Cu LG Zone 1	40	0.20	1.58	1.6	0	0.20	1.58	1.6
	212	Cu LG Zone 2	217	0.13	2.12	2.0	0	0.13	2.12	2.0
	213	Cu LG Zone 3	562	0.14	1.20	1.4	0	0.14	1.20	1.4
	214	Cu LG Zone 4	171	0.07	1.01	1.9	0	0.07	1.01	1.9
	215	Cu LG Zone 5	192	0.25	4.04	2.0	6	0.24	2.93	1.7
FCZ HG	221	Cu HG Zone 1	71	0.74	3.39	1.1	0	0.74	3.39	1.1
	222	Cu HG Zone 2	219	0.86	9.11	1.6	5	0.83	5.86	1.4
	223	Cu HG Zone 3	43	0.62	4.13	1.3	0	0.62	4.13	1.3

Mineralized Solid			Pb (%)				PbCap (%)			
			Count	mean	max.	CV	#Cap	mean	max.	CV
JT LG	11	JT LG Zone	1,707	0.05	7.35	4.6	18	0.04	1.20	2.9
JT HG	12	JT HG Zone	1,679	0.79	18.66	2.3	3	0.78	17.09	2.2
JT Ext	111	JT NE Vein1	7	0.09	0.48	1.9	0	0.09	0.48	1.9
	112	JT NE Vein2	36	0.18	1.17	1.6	0	0.18	1.17	1.6
	113	JT NE Vein3	65	0.17	3.48	3.1	2	0.12	1.20	2.1
	114	JT NE Vein4	3	0.07	0.18	1.5	0	0.07	0.18	1.5
	115	JT NE Vein5	53	0.33	1.65	1.3	4	0.31	1.20	1.2
	116	JT NE Vein6	30	0.17	3.07	3.3	1	0.08	0.61	1.9
FCZ LG	211	Cu LG Zone 1	40	0.07	1.45	3.7	2	0.03	0.34	2.4
	212	Cu LG Zone 2	217	0.03	0.61	2.5	4	0.02	0.35	2.1
	213	Cu LG Zone 3	562	0.03	0.70	2.8	15	0.02	0.40	2.5
	214	Cu LG Zone 4	171	0.01	0.08	1.6	0	0.01	0.08	1.6
	215	Cu LG Zone 5	192	0.03	0.59	2.3	2	0.02	0.32	2.0
FCZ HG	221	Cu HG Zone 1	71	0.11	5.65	6.4	2	0.02	0.40	2.6
	222	Cu HG Zone 2	219	0.06	2.14	3.3	12	0.04	0.39	2.0
	223	Cu HG Zone 3	43	0.03	0.55	2.9	2	0.02	0.31	2.1

Mineralized Solid			Zn (%)				ZnCap (%)			
			Count	mean	max.	CV	#Cap	mean	max.	CV
JT LG	11	JT LG Zone	1,707	1.17	24.17	1.5	6	1.15	18.60	1.4
JT HG	12	JT HG Zone	1,679	5.42	48.20	1.1	18	5.34	35.00	1.1
JT Ext	111	JT NE Vein1	7	0.42	1.72	1.6	0	0.42	1.72	1.6
	112	JT NE Vein2	36	0.76	2.89	1.1	0	0.76	2.89	1.1
	113	JT NE Vein3	65	1.77	17.36	1.7	0	1.77	17.36	1.7
	114	JT NE Vein4	3	1.36	1.88	0.5	0	1.36	1.88	0.5
	115	JT NE Vein5	53	4.07	21.34	1.0	2	4.04	20.16	1.0
	116	JT NE Vein6	30	0.71	3.69	1.2	0	0.71	3.69	1.2
FCZ LG	211	Cu LG Zone 1	40	0.51	8.54	2.9	2	0.38	4.42	2.2
	212	Cu LG Zone 2	217	0.28	3.31	1.6	2	0.28	3.18	1.6
	213	Cu LG Zone 3	562	0.16	4.92	2.3	0	0.16	4.92	2.3
	214	Cu LG Zone 4	171	0.07	1.41	2.2	0	0.07	1.41	2.2
	215	Cu LG Zone 5	192	0.21	3.24	2.1	1	0.21	3.24	2.1
FCZ HG	221	Cu HG Zone 1	71	0.71	12.47	2.7	1	0.62	8.40	2.4
	222	Cu HG Zone 2	219	0.80	12.44	2.2	4	0.73	7.54	1.9
	223	Cu HG Zone 3	43	0.17	1.26	1.6	0	0.17	1.26	1.6

11.6 Variography

The Johnson Tract low-grade and high-grade domains were the only mineralized zones with a sufficient number of composites to calculate meaningful variograms. In these two domains, spatial continuity of capped composite data was analysed using Supervisor® software. For each metal, directions of continuity were determined from variogram maps. The nugget effect and sill contributions were derived from down-hole experimental variograms followed by final model fitting on directional variogram plots. Variogram models for the Johnson Tract LG and HG Domains are listed in Table 11-5.

Table 11-5 Johnson Tract LG & HG Domain Variogram Models

Johnson Domain	Axis	Direction (dip/azimuth)	Nugget Effect	Spherical Component 1		Spherical Component 2	
				Sill	Range(m)	Sill	Range(m)
Au 11 (LG)	X	80 / 305	0.14	0.45	10	0.41	130
	Y	00 / 035			15		70
	Z	-10 / 305			20		45
Au 12 (HG)	X	58 / 006	0.12	0.58	30	0.30	85
	Y	-18 / 064			25		75
	Z	-25 / 325			10		25
Ag 11 (LG)	X	61 / 283	0.18	0.55	10	0.27	45
	Y	14 / 039			10		60
	Z	-25 / 315			10		30
Ag 12 (HG)	X	60 / 039	0.19	0.51	25	0.30	135
	Y	-30 / 027			20		45
	Z	05 / 300			5		25
Cu 11 (LG)	X	38 / 343	0.14	0.63	50	0.23	125
	Y	-38 / 037			60		85
	Z	-30 / 280			5		40
Cu 12 (HG)	X	19 / 035	0.15	0.53	45	0.32	95
	Y	-65 / 075			10		85
	Z	-15 / 310			15		25
Pb 11 (LG)	X	00 / 020	0.15	0.69	35	0.16	105
	Y	-25 / 110			25		45
	Z	-65 / 290			15		40
Pb 12 (HG)	X	74 / 286	0.16	0.48	40	0.36	120
	Y	05 / 034			15		60
	Z	-15 / 305			20		45
Zn 11 (LG)	X	-01 / 025	0.12	0.42	15	0.46	50
	Y	10 / 115			5		45
	Z	-80 / 120			15		70
Zn 12 (HG)	X	05 / 058	0.14	0.48	30	0.38	130
	Y	-69 / 136			35		70
	Z	-20 / 330			15		30

11.7 Grade Interpolation

Grades were estimated by ordinary kriging in the Johnson Domains and by inverse distance weighting in the other less densely drilled domains. Table 11-6 lists the orientations and dimensions of search volumes as well as the method and numbers of samples used for estimation in each of the mineralized zones. Search orientations were derived to best fit the geometry of each domain. Each mineralized zone was initially estimated separately with hard boundaries among the domains. Some JT volumes were estimated by sharing samples across interpreted domain boundaries over a short distance.

Three of the JT Extension domains abut JT HG and/or JT LG mineralization (codes: 112, 113 and 115). In a second estimation pass, samples were shared across the interpreted domain boundaries, over a nominal strike length of 100 m (~50 m into each zone). Search dimensions for this estimation pass was one-half that listed in Table 11-6. The impact of this search strategy is very low; AuEq grade of blocks included in the resource was lowered by 0.1%.

Table 11-6 Grade Estimation Parameters

Mineralized Solid			Search Direction (dip / azimuth)			Search Radius (metres)			Weighting	Number of Samples for Estimate		
			X	Y	Z	X	Y	Z		min	max	max/hole
JT LG	11	JT LG Zone	00 / 047	74 / 317	-16 / 317	100	100	50	OK	2	20	12
JT HG	12	JT HG Zone	00 / 043	76 / 313	-14 / 313	100	100	50	OK	2	20	12
JT Ext	111	JT NE Vein1	00 / 042	87 / 312	-03 / 312	100	100	50	ID^2 (Au, Ag) ID^3 (Cu, Pb, Zn)	2	16	8
	112	JT NE Vein2	00 / 040	83 / 310	-07 / 310	100	100	50		2	16	8
	113	JT NE Vein3	00 / 034	75 / 304	-15 / 304	100	100	50		2	16	8
	114	JT NE Vein4	00 / 030	79 / 300	-11 / 300	100	100	50		2	16	8
	115	JT NE Vein5	00 / 045	81 / 315	-09 / 315	100	100	50		2	16	8
	116	JT NE Vein6	00 / 044	80 / 314	-10 / 314	100	100	50		2	16	8
FCZ LG	211	Cu LG Zone 1	00 / 064	41 / 334	-49 / 334	100	100	50	ID^2 (Au, Ag) ID^3 (Cu, Pb, Zn)	2	20	12
	212	Cu LG Zone 2	00 / 071	40 / 341	-50 / 341	100	100	50		2	20	12
	213	Cu LG Zone 3	00 / 068	42 / 338	-48 / 338	100	100	50		2	20	12
	214	Cu LG Zone 4	00 / 055	34 / 325	-56 / 325	100	100	50		2	20	12
	215	Cu LG Zone 5	00 / 106	30 / 016	-60 / 016	100	100	50		2	20	12
FCZ HG	221	Cu HG Zone 1	00 / 056	36 / 326	-54 / 326	100	100	50	ID^2 (Au, Ag) ID^3 (Cu, Pb, Zn)	2	20	12
	222	Cu HG Zone 2	00 / 071	41 / 341	-49 / 341	100	100	50		2	20	12
	223	Cu HG Zone 3	00 / 052	56 / 322	-34 / 322	100	100	50		2	20	12

11.8 Density Assignment

As detailed earlier in this report in Chapter 8, 615 density measurements were made on historic and 2019 Johnson Tract core samples, during the 2019 field season. The mean value of these measurements is 2.79 t/m3. While the relationship between density and grade is not overly compelling, removing 178 samples with gold equivalence less than 2.5 g/t shifted the average to 2.84 t/m3. This observation coupled with a review of pycnometer density measurements, and the higher historic value of 2.88 used by Westmin, led to the decision to use an average of 2.84 t/m3 for mineralized material included in this estimate.

11.9 Model Validation

Estimated grades for all elements were validated visually by comparing composite to block values in plan view and on cross-sections. There is good visual correlation between composite and estimated block grades for all modelled elements. An example vertical section, comparing drill hole composites with estimated block grades is shown in Figure 11-4; to provide context, this figure includes resource classification and identifies domains.

Nearest neighbour (NN) validation models were also estimated for all metals using search parameters consistent with those used for resource estimation. In the Johnson Tract Domains, where the resource estimate was by OK, inverse distance models were also estimated as a validation tool. For the NN estimate, the block size was adjusted to 3x3x1.5 m to appropriately match the composite interval. NN results were then re-blocked (12:1) for comparison to resource blocks.

Grade models were compared spatially using swath plots; example plots for gold resource blocks, in the Johnson Tract Domains, are included in Figure 11-5. The OK estimates are appropriately smooth in comparison to the nearest neighbor model. Globally, model average grades above zero cutoff (shown on plots) compare very closely indicating no bias. Table 11-7 lists metal grades by domain for the resource and the validation block models. Highlighted entries are the 2022 resource estimated values. The large differences to NN estimates are indicative of areas of lesser sample support (inferred mineral resource).

Table 11-7 Resource and Validation Grade Models by Domain

Mineralized Solid			Block Count	Au (g/t) ID^2	Au (g/t) OK	Au (g/t) NN	Ag (g/t) ID^2	Ag (g/t) OK	Ag (g/t) NN	Cu (%) ID^3	Cu (%) OK	Cu (%) NN
JT LG	11	JT LG Zone	227	2.59	2.66	2.69	4.4	4.3	4.8	0.36	0.36	0.41
JT HG	12	JT HG Zone	6,905	5.19	5.06	4.98	5.9	5.9	5.6	0.53	0.53	0.53
JT Ext	112	JT NE Vein2	28	2.04		2.63	6.4		13.1	0.60		0.45
	113	JT NE Vein3	234	3.50		4.63	18.0		28.0	0.25		0.22
	115	JT NE Vein5	501	0.29		0.28	1.9		1.9	0.32		0.26
FCZ HG	222	Cu HG Zone 2	221	0.13		0.15	26.6		35.2	1.75		2.21

Mineralized Solid			Block Count	Pb (%) ID^3	Pb (%) OK	Pb (%) NN	Zn (%) ID^3	Zn (%) OK	Zn (%) NN
JT LG	11	JT LG Zone	227	0.24	0.23	0.16	2.77	2.72	2.71
JT HG	12	JT HG Zone	6,905	0.65	0.65	0.60	5.28	5.21	5.13
JT Ext	112	JT NE Vein2	28	0.29		0.39	5.09		1.29
	113	JT NE Vein3	234	0.66		0.75	3.94		3.56
	115	JT NE Vein5	501	0.31		0.32	6.03		3.71
FCZ HG	222	Cu HG Zone 2	221	0.08		0.10	2.19		2.52

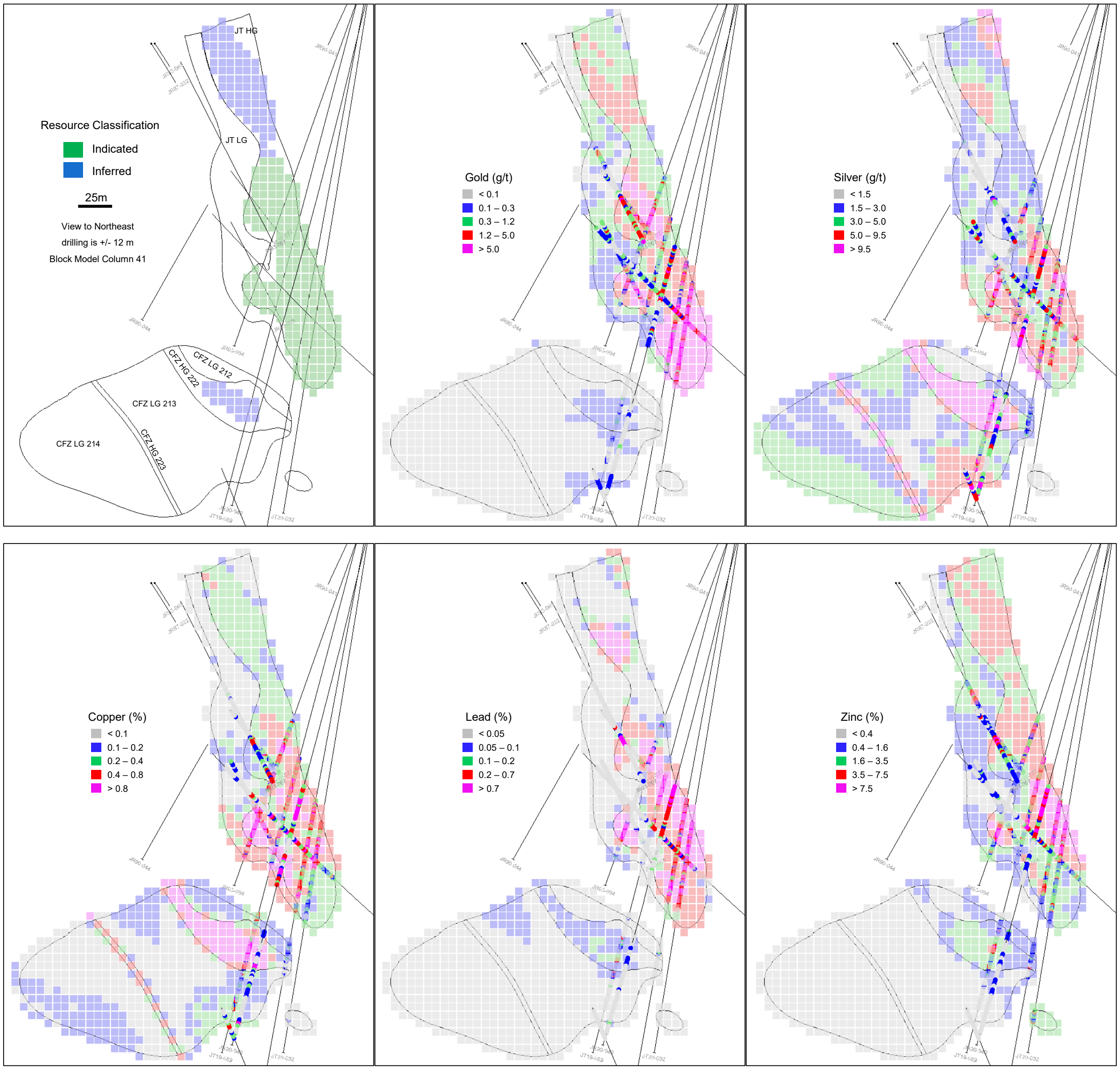


Figure 11-4 Example Section – Model Column 41: Resource Class, Block Estimate and Composite Grades

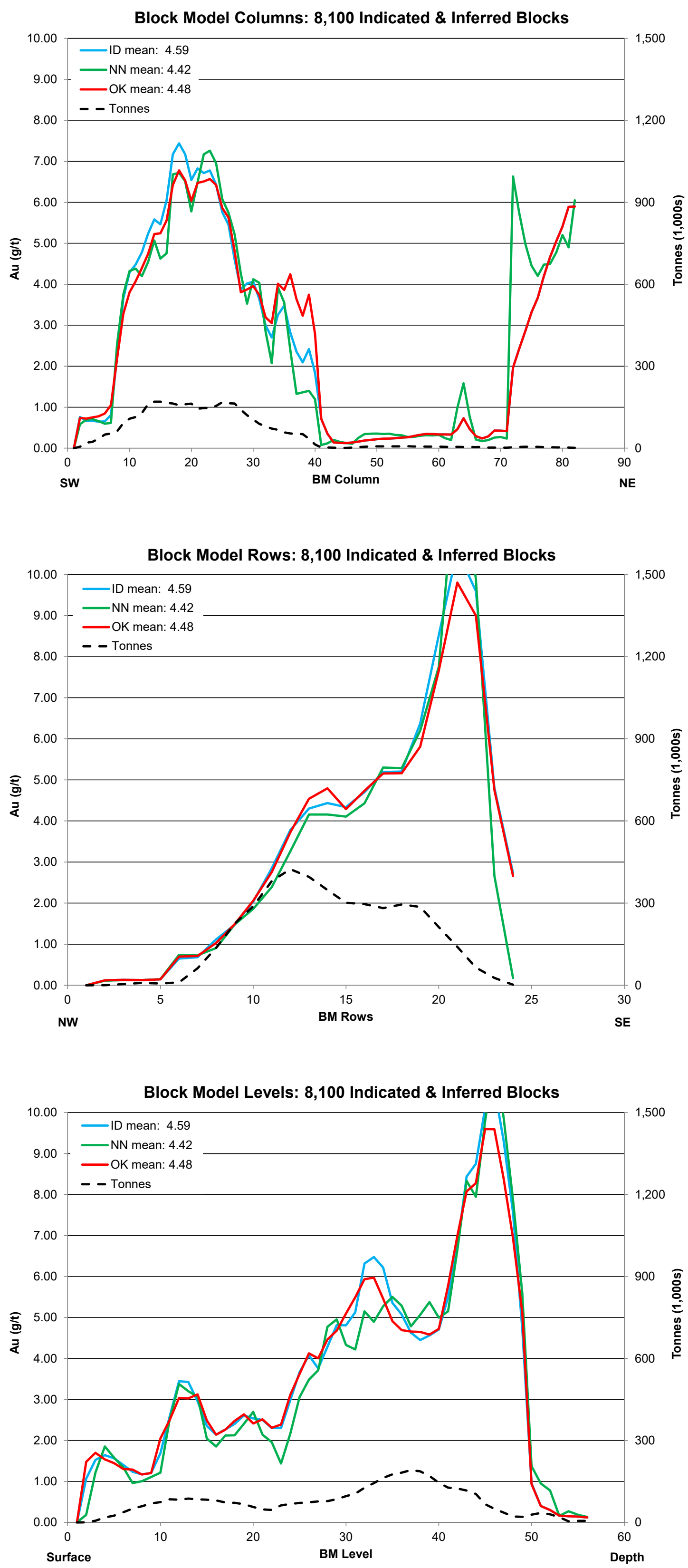


Figure 11-5 Example Swath Plots Comparing OK, ID and NN Models in Johnson Domain

11.10 Resource Classification and Tabulation

The resource estimate for the Deposit is reported in both Indicated and Inferred categories. There is no portion of the mineralized zones that is considered to comprise measured resources at this time. The resource block model was classified in accordance with the SEC S-K 1300.

The Mineral Resources presented in this section are not Mineral Reserves and do not reflect demonstrated economic viability. The reported Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that all or any part of this Mineral Resource will be converted into Mineral Reserve. All figures are rounded to reflect the relative accuracy of the estimates and totals may not add correctly.

Mineral Resources

7 CFR § 229.1300 defines a “mineral resource” as a concentration or occurrence of 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 economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled. A “measured mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the Deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.

An “indicated mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the Deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.

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. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project and may not be converted to a mineral reserve.

Mineral Reserves

17 CFR § 229.1300 defines a "mineral reserve" as an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted. A "proven mineral reserve" is the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource. A "probable mineral reserve" is the economically mineable part of an indicated and, in some cases, a measured mineral resource.

Estimated blocks were initially classified based on spatial parameters related to drill spacing and configuration – namely calculated drill density and the distance to the closest composite. Blocks were initially assigned as inferred if drilled at a maximum spacing of 100 m (328 ft.) or within 30 m (98 ft.) of the closest sample. Within that volume, blocks having a maximum drill spacing of 40 m (131 ft.) were initially classified as Indicated Mineral Resource. Measures were then taken to assess the contiguous nature of classified blocks at a range of cut-off grades, such that the resource has reasonable prospects of eventual economic extraction by underground mining methods.

Sources of uncertainty associated with the collection of geologic and analytical information (sampling or drilling methods, data processing and handling) have largely been dealt with during exploration and drilling activities as described in earlier sections of this report. Uncertainty associated with geologic modeling are reflected in the lesser drill density (higher uncertainty) supporting the Inferred Mineral Resource. The Indicated Resource, in the JT Main zone, is supported by drilling at a minimum 40 m (131 ft.) spacing. Uncertainty attributable to estimation methodology is again largely a function of the density of available drill information. Areas with lower drill density have been estimated by geometric methods (inverse distance weighting) as opposed to geostatistical methods. Once in-fill drilling is available, that uncertainty will be reduced.

In order to establish a meaningful resource tabulation for potential underground extraction methods, a minimum volume needs to be considered; the 6 x 6 x 6 m block size is not a realistic selective mining unit. For resource reporting, blocks were grouped by AuEq cut-off grade into face connected volumes. This block agglomeration process reduces the risk associated with simple block tabulation of a resource where the expectation is of underground, as opposed to open pit mining. Reporting here is based on a minimum of 10 contiguous blocks – a minimum volume of 2,160 m3, as a reasonable minimum stope size.

The contiguous, classified volume was further checked to manually include or exclude blocks that could not be practically handled in an underground mining scenario (pillars above and below cut-off). The resulting classified volumes are shown in Figure 11-6 and totalled in Table 11-8.

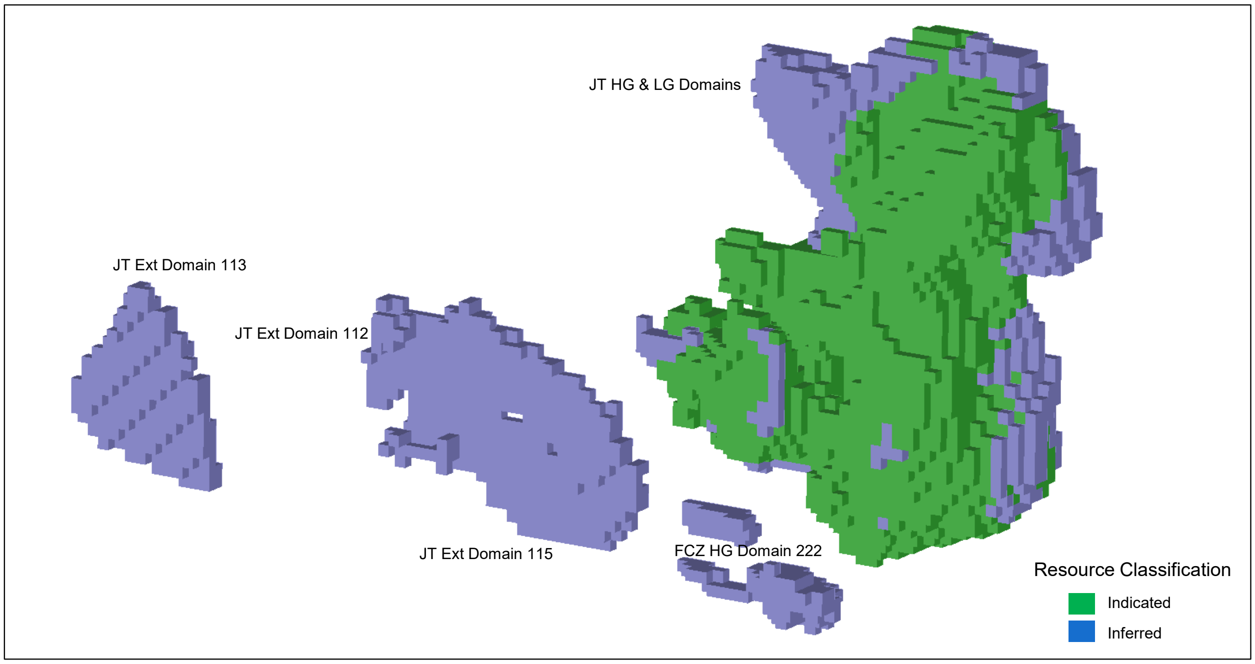


Figure 11-6 Johnson Tract 2022 Resource Classification (view to ESE)

Table 11-8 Johnson Tract Deposit Mineral Resource Estimate (3.0 g/t AuEq Cut-off)

Category	Tonnes (000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)
Indicated	3,489	5.33	6.0	0.56	0.67	5.21	9.39
Inferred	706	1.36	9.1	0.59	0.30	4.18	4.76
Contained Metal							
Category		**Au (K oz)**	**Ag (K oz)**	**Cu (M lb)**	**Pb (M lb)**	**Zn (M lb)**	**AuEq (K oz)**
Indicated		598	673	43.1	51.5	400.8	1,053
Inferred		31	207	9.2	4.7	65.1	108

Notes
1. Includes all drill holes completed at the Johnson Tract Deposit, with drilling completed between 1982 and most recently as October 2021
2. Assumed metal prices are US$1650/oz for gold (Au), US$20/oz for silver (Ag), US$3.50/lb copper (Cu), US$1/lb lead (Pb), and US$1.50/lb for zinc (Zn). Metal prices were established considering the review of three-year averages of published monthly values.
3. Gold Equivalent (AuEq) is based on assumed metal prices and payable metal recoveries of 97% for Au, 85% for Ag, 85% Cu, 72% Pb and 92% Zn from metallurgical testwork completed in 2022.
4. AuEq equals = Au g/t + Ag g/t × 0.01 + Cu% × 1.27 + Pb% × 0.31 + Zn% × 0.59
5. An average bulk density value of 2.84 used as determined by conventional analytical methods for assay samples
6. Capping applied to assays to restrict the impact of high-grade outliers
7. Preliminary underground constrains were applied, including the elimination of isolated or scattered blocks above cut-off grade to define the "reasonable prospects of eventual economic extraction" for the Mineral Resource Estimate
8. Mineral resources as reported are undiluted
9. Mineral resource tonnages have been rounded to reflect the precision of the estimate
10. Readers are cautioned that mineral resources that are not mineral reserves do not have demonstrated economic viability

The Indicated Mineral Resource is entirely within the JT Domains. Small volumes of the JT Extension and Footwall Copper Domains are included in the Inferred category. Table 11-9 provides domain breakdown of the 2022 resource by domain.

Table 11-9 Johnson Tract Deposit Mineral Resource Estimate by Domain (3.0 g/t AuEq Cut-off)

Domain	Indicated							Inferred						
	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)
JT Main	3,489	5.33	6.0	0.56	0.67	5.21	9.39	405	1.86	4.5	0.32	0.35	4.29	4.94
JT Ext'n								167	1.15	6.1	0.31	0.38	5.50	4.96
Copper								134	0.14	26.5	1.74	0.08	2.20	3.95
Total	**3,489**	**5.33**	**6.0**	**0.56**	**0.67**	**5.21**	**9.39**	**706**	**1.36**	**9.1**	**0.59**	**0.30**	**4.18**	**4.76**
Contained Metal														
Domain	**Indicated**							**Inferred**						
		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)
JT Main		598	673	43.1	51.5	400.8	1,053		24	59	2.9	3.1	38.3	64
JT Ext'n									6	33	1.1	1.4	20.2	27
Copper									1	115	5.2	0.2	6.5	17
Total		**598**	**673**	**43.1**	**51.5**	**400.8**	**1,053**		**31**	**207**	**9.2**	**4.7**	**65.1**	**108**

The economic underground mining cut-off is calculated to be 2.5 g/t AuEq derived from assumed operating cost of $65/t for mining, $35/t processing and $20/t G&A and accounting for transport and smelter charges. Contango Ore has elected to report this mineral resource at a higher cut-off grade of 3.0 g/t Au, given the high-grade nature of the Deposit. To illustrate sensitivity to AuEq cut-off, a range of cutoff grades are included in Table 11-10.

Table 11-10 Johnson Tract Deposit Mineral Estimate at Range of AuEq Cut-off Grades

COG AuEq (g/t)	Indicated							Inferred						
	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)	Tonnes (1,000s)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	AuEq (g/t)
2.5	3,608	5.19	5.9	0.55	0.66	5.14	9.18	934	1.13	9.3	0.59	0.26	3.74	4.27
2.75	3,557	5.25	5.9	0.56	0.66	5.16	9.27	800	1.24	9.3	0.60	0.28	3.99	4.53
3.0	3,489	5.33	6.0	0.56	0.67	5.21	9.39	706	1.36	9.1	0.59	0.30	4.18	4.76
Contained Metal														
COG AuEq (g/t)	**Indicated**							**Inferred**						
		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)		Au (K oz)	Ag (K oz)	Cu (M lb)	Pb (M lb)	Zn (M lb)	AuEq (K oz)
2.5		602	684	43.7	52.5	408.8	1,065		34	279	12.2	5.4	77.0	128
2.75		600	675	43.9	51.8	404.6	1,060		32	239	10.6	4.9	70.4	117
3.0		598	673	43.1	51.5	400.8	1,053		31	207	9.2	4.7	65.1	108

12 MINERAL RESERVE ESTIMATES

The Johnson Tract Project does not have any Mineral Reserves.

13 MINING METHODS

The Johnson Tract Project (the Project) is amenable for extraction via underground mining methods. Consideration of suitable mining methods for the Project was based on the Deposit size, geometry (e.g., thickness, continuity), average grade, desired production rate, geotechnical parameters, and economic assumptions. Following this assessment, two were selected for this study – long hole open stoping (LHOS) and mechanized cut and fill (C&F).

Of the three geologic domains contained within the Project area (Johnson Tract Deposit, Footwall Copper Zone, and JT Extension), only material pertaining to the Johnson Tract Deposit was incorporated in the Life of Mine (LoM) plan envisioned in this study.

13.1 Geotechnical

13.1.1 Dataset

The following geotechnical data was provided by Contango Ore for review:

- Topography mesh.
- Drillhole database.
- Lithology logs.
- Geotechnical logging (recovery, rock quality designation (RQD), Jn, Jr, Ja).
- Previous geotechnical study reports (Bogart, 2023; Steeves, 2024).
- Historical laboratory rock strength tests.
- Core photos from selected drillholes across the mineralized zone.
- 3D geological model including Dacite Fault.
- Preliminary underground mine design.

Core photographs were reviewed against RQD data to validate the geotechnical parameters in the drillhole database. In total, five sections and 12 drillholes were reviewed as part of the geotechnical review. It was determined that RQD data was representative of the rock mass conditions in core box photos and can be used for further geotechnical review. Geotechnical parameters were further interrogated and compared against the recent geotechnical study by Bogart (2023) to define the rock mass quality.

Rock strength tests were available to help inform the general rock strengths; however, the samples' rock type or location were not documented to georeferenced the test results to the Footwall, Hanging Wall, or the mineralized zone for geotechnical characterization.

Orientation data related to major and minor structures were not available for review.

13.1.2 Mine Design Geotechnical Parameters

Geotechnical domains were used to characterize the variability in ground conditions at the Project given the rock mass classification data. The domains can be described as follows:

- QFP Hanging Wall (HW): consists of dacite quartz-feldspar-porphyry (QFP) and tuff in the upper and lower portion of the mineralized zone, respectively. Geotechnical parameters suggest rock mass quality ranges from fair to very good in the mineralized zone's hanging wall. Mining infrastructure including crosscuts, development, exploration drift, and main access ramp are designed within this domain.
- Mineralized zone: silicified mineralized zone with quartz sulfide veinlets. Geotechnical parameters suggest rock mass quality ranges from good to extremely good.
- Tuff Footwall (FW): the mineralized zone's footwall mainly consists of tuff. The geotechnical parameters suggest rock mass quality ranges from fair to very good in the immediate footwall (within 5m of design stopes). Rock mass quality diminishes in the distal footwall.
- Dacite Fault: fault zone which sits immediately above or within the HW. It is characterized by fractured or disintegrated core. Based on the latest geological model, thickness ranges from 1 to 15 m near the planned stopes. Core photo review suggests that Dacite Fault rock mass quality ranges from extremely poor to very poor.
- Crown Pillar: rock within 50 m (165 ft.) of vertical depth from topography. Geotechnical parameters suggest rock mass quality ranges from extremely poor to fair. Geotechnical parameters available suggest rock mass quality ranges from exceptionally poor to fair.

A cross section of the Deposit domains is shown in Figure 13-1. The typical core box conditions observed for each domain is show in Figure 13-2.

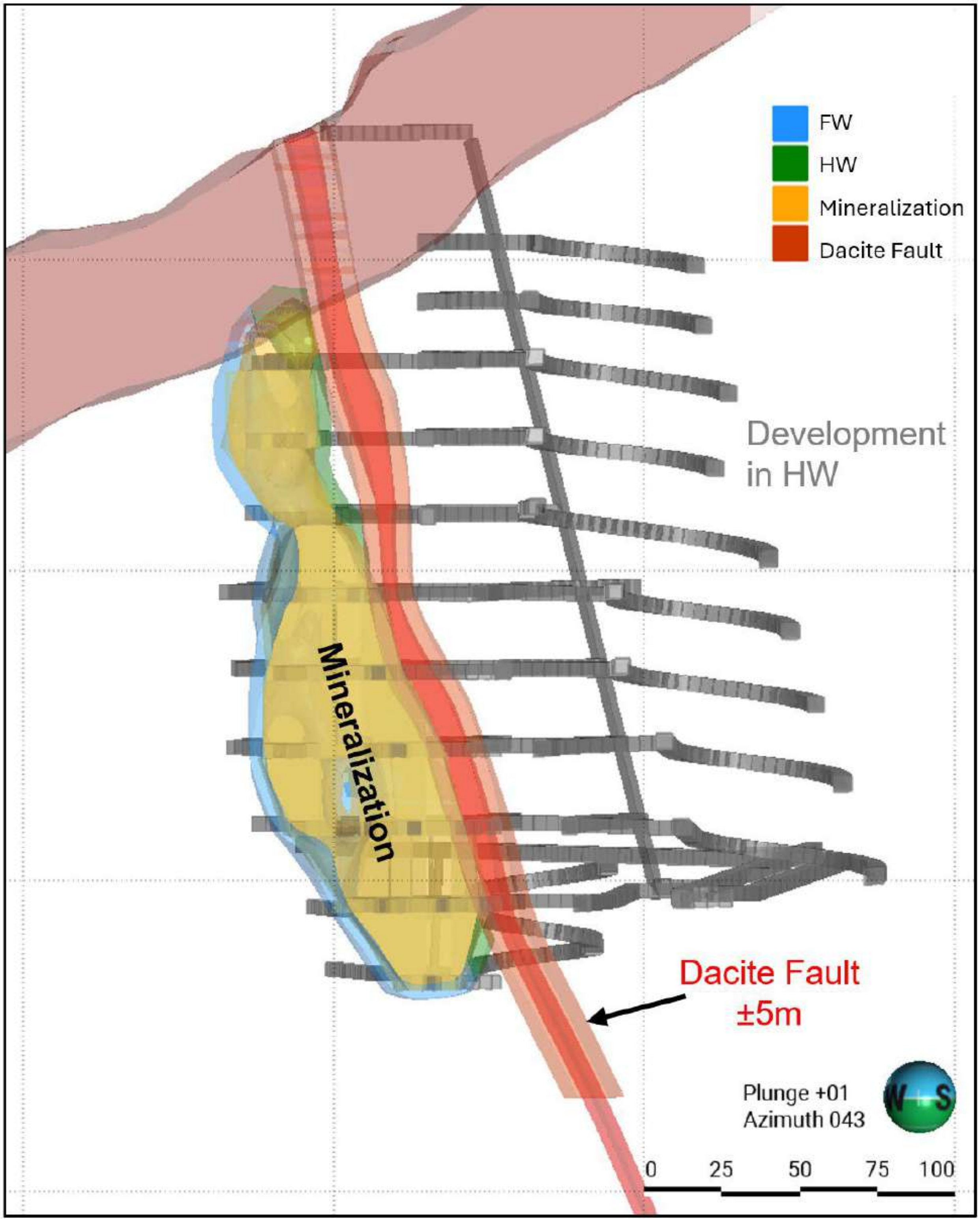


Figure 13-1 Geotechnical domains cut in cross section normal to the strike of the mineralized zone looking northeast.

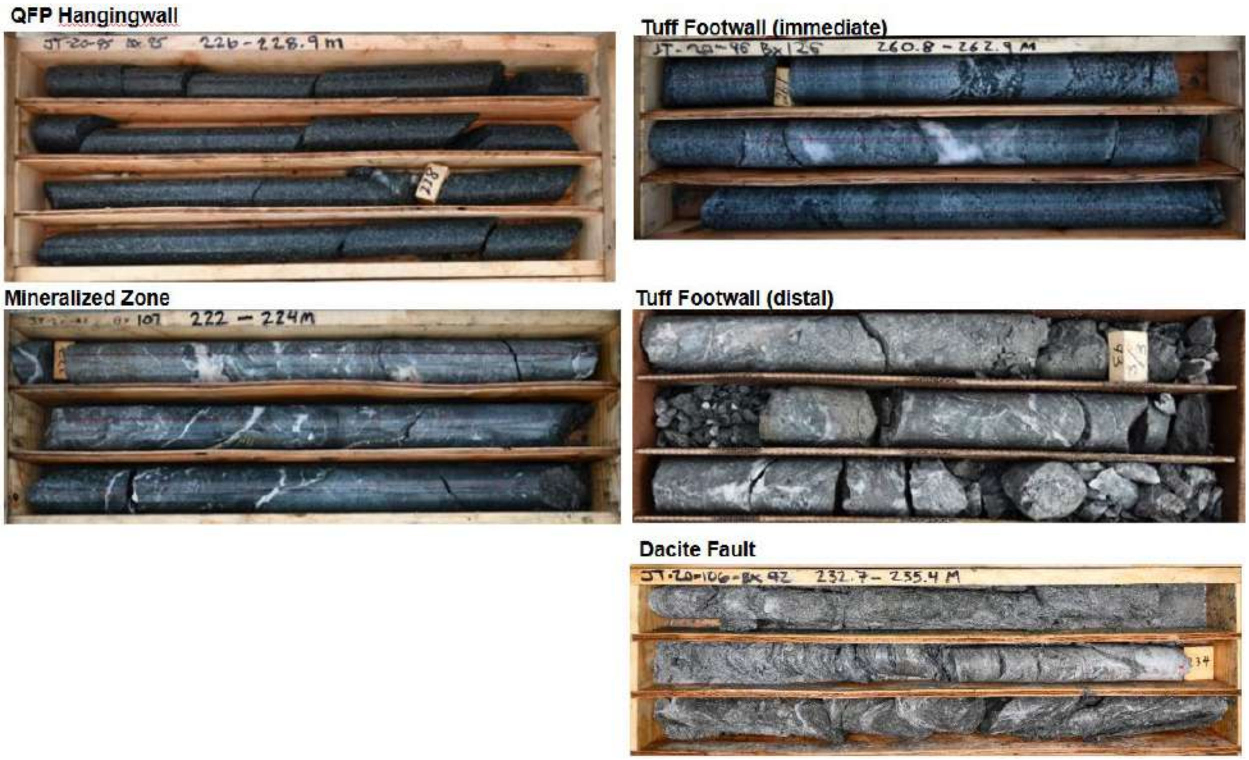


Figure 13-2 Representative core box photos for each geotechnical domain

Major structures within the Deposit were reviewed to understand their impact on mine design and stope stability. Distance function in Leapfrog software was used to evaluate the thickness of the Dacite Fault and proximity to the designed stopes. The majority of the stope hanging wall is within 1 m from the Dacite Fault contact and fault thickness can range from approximately 2 m to 15 m (6 ft. to 50 ft.). Where the HW interacts with the Dacite Fault with large thickness, adverse mining conditions are expected.

13.1.3 Risks and Opportunities

Risks

- The Dacite Fault poses a significant risk to the stability of underground excavations. Refinement of the delineation of this fault structure and understanding of its characteristics will be important.
- The currently proposed alignment of the access portal and decline is potentially intersecting unfavorable ground conditions in the altered dacite unit. Further characterization of the alteration and adjustments to the design may be needed.
- Evidence of brittle fault structures in the Tuff FW unit have been observed in the drill data and core photographs. The influence of these faults to the stability of the proposed underground excavations is not well understood.

Opportunities

- A minimum thickness of 30 m (~100 ft.) has been recommended for the crown pillar due to uncertainties related to the depth of overburden. There is an opportunity to reduce the thickness with additional geologic and geotechnical data acquisition.
- The recommended underhand cut and fill mining method for recovery of the Dacite Fault pillar is considered labor intensive and high cost. Further assessments are recommended to explore more efficient recovery methods such as sublevel caving.

13.1.4 Rock Quality, Strength, and Joint Orientations

Geotechnical parameters including RQD and calculated Q values were reviewed by domain. Statistics for Q values based on domain are summarized in Table 13-1. Stress reduction factor (SRF) for the Q-calculations were applied based on the depth from surface. If data was within 50 m (197 ft.) of topography, SRF of 2.5 was assigned, which assumes competent, mainly massive rock with low stress, low stresses at shallow depth (Barton, 1974). Otherwise, data below the 50 m (197 ft.) of topography was assigned SRF of 1, which assumes favorable stress condition at medium stress level.

Table 13-1 Q parameter (length weighted) by zone

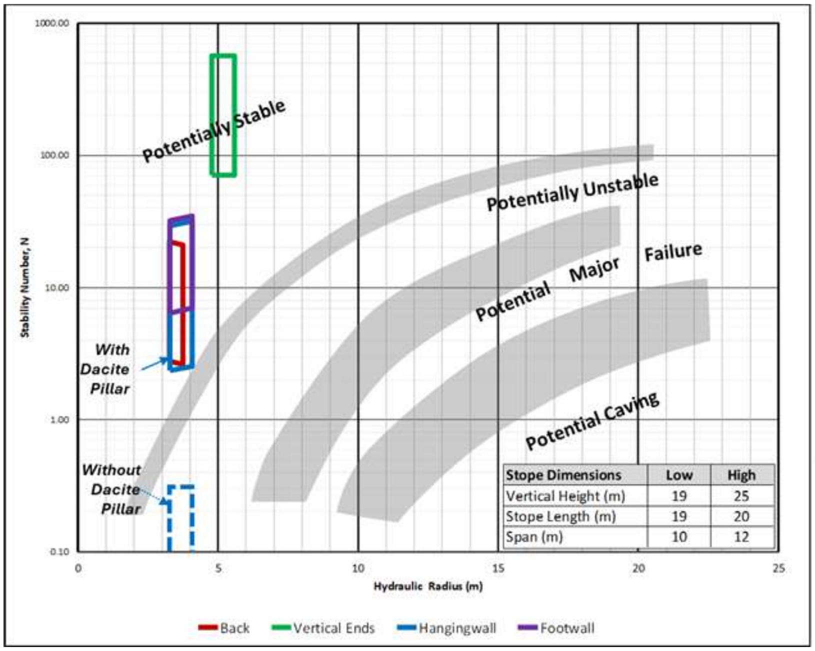
Domain	Length (m)	Q					Location within Mine Design	UCS (Mpa) (Bogert, 2023)
		Mean	Lower Quartile	Median	Upper Quartile	Rating (25-75% Quartile)		
Crown Pillar	214	6	0.016	0.15	5.6	Extremely Poor to Fair	Crown pillar and C&F zone above LHOS	-
Dacite Fault	619	6	0.0035	0.1	1.2	Extremely Poor to Poor	Dacite Fault	-
Immediate HW	210	114	1.6	20.0	86.7	Failr to Very Good	Stope HW and underground infrastructure	85-150
Mineralized Zone	2036	154	17.5	63.3	150.0	Good to Extremely Good	Stope back and sidewalls	70-115
Immediate FW	665	72	4.3	24.2	85.0	Fair to Very Good	Stope FW	25-85

13.1.5 Engineering Analysis

Stability analysis using industry accepted empirical methods was completed to inform excavation design, crown pillar, and ground support designs for development and production drifts.

Empirical analysis was completed using the stability graph by Stewart & Forsyth (1995) and equivalent linear overbreak to slough (ELOS) by Clark & Pakalnis (1997). Both stability graph methods are a variation of Mathews Stability Curve (Mathews et al. ,1981), which is a plot of stability number (N') against the hydraulic radius (HR). Q values from Table 13-1 were used for empirical stability assessment.

The stability ground boundary method is based on the compilation of a large statistical data set collected from a wide range of geographic locations and stress conditions. Figure 13-3 demonstrates that while walls are generally stable, the hanging wall (solid blue line) and back (purple) plot above the transition zones from potentially stable to potentially unstable where lower bound conditions are observed. When the Dacite Fault is the acting hanging wall, the empirical chart plots within the potentially unstable zone (dashed blue line).



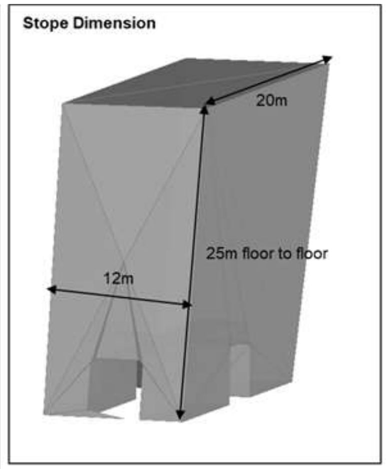


Figure 13-3 Stope stability chart for given stope dimensions

Based on the stope stability analysis chart shown in Figure 13-3, potentially unstable stope conditions are expected when Dacite Fault (extremely poor to poor conditions) is within the immediate hanging wall. The following stope designs are recommended for transverse mine design:

- Use overhand long hole open stoping (LHOS) mining method as the primary mining method (primary-primary)
  - Stope Height: 25 m (82 ft.) floor to floor
  - Stope Length: 20 m (65 ft.)
  - Stope Back Width: 12 m (40 ft.)
- Leave a minimum 5 m pillar in the hanging wall between stopes and the Dacite Fault
- Use underhand cut and fill (C&F) mining method to recover the Dacite Fault pillar
- Estimated dilution is 1 m hanging wall + 0.25 m footwall
- Investigate joint orientation and joint wall properties to understand potential kinematic risks

The Equivalent Linear Overbreak Sloughing (ELOS) empirical method predicts the quantity of unplanned overbreak for sloughing of unsupported walls. The ELOS plot in Figure 13-4 demonstrates that under immediate HW (solid blue line) conditions, the hanging wall is subject to overbreak ranging from 0.5 m to 1 m. However, when the Dacite Fault is the acting hanging wall, severe sloughing and wall collapse are expected (dashed blue line).

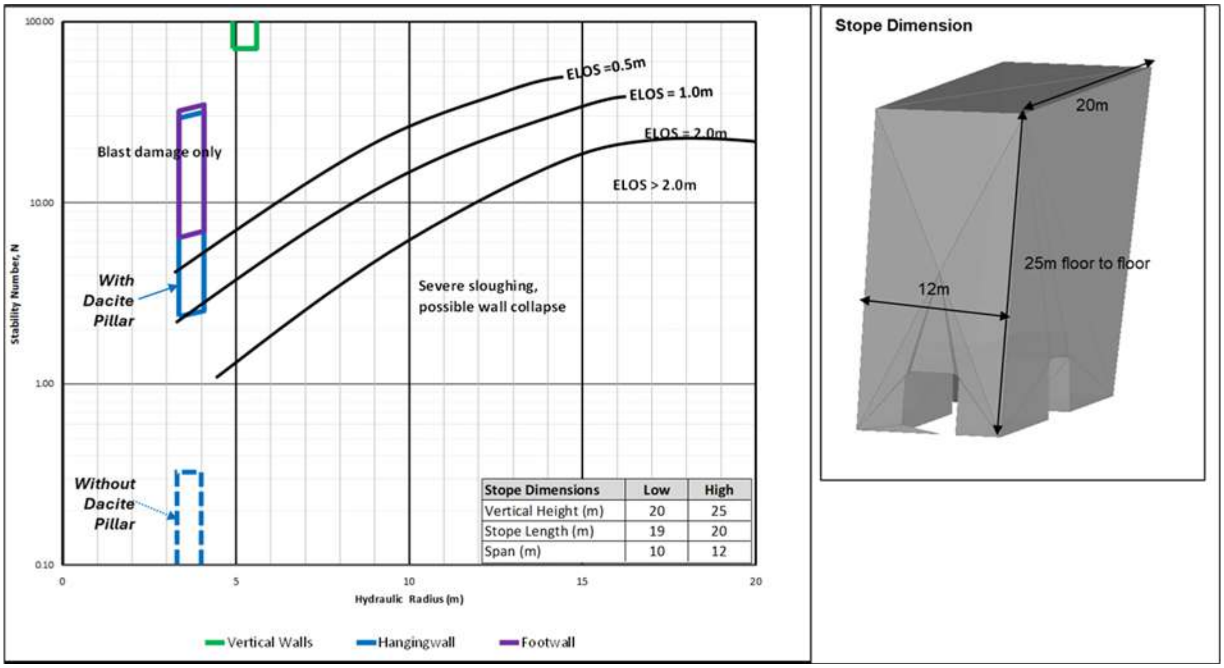


Figure 13-4 ELOS chart for given stope dimensions

13.1.6 Primary Ground Support for Development

Ground support design was evaluated based on tunneling quality index Q by Grimstad & Barton (1993) as shown in Figure 13-5. Based on the Q parameters from Table 13-1, the following ground support is recommended:

- Permanent drifts (5 x 5 m)
  - 2.4 m #7 resin rebar on 1.8 x 1.8 m spacing, welded wire mesh
  - Temporary drifts (4.5 x 5 m)
  - 1.8 m #7 resin rebar on 1.5 x 1.5 m spacing, welded wire mesh
- Development through Dacite Fault
  - Short rounds (approximately 2 m)
- 75 mm shotcrete (SC), 2.4 m Epiroc Pm12 or equivalent Swellex on 1x1 m spacing and mesh, 75 mm shotcrete
  - Spiling may be needed

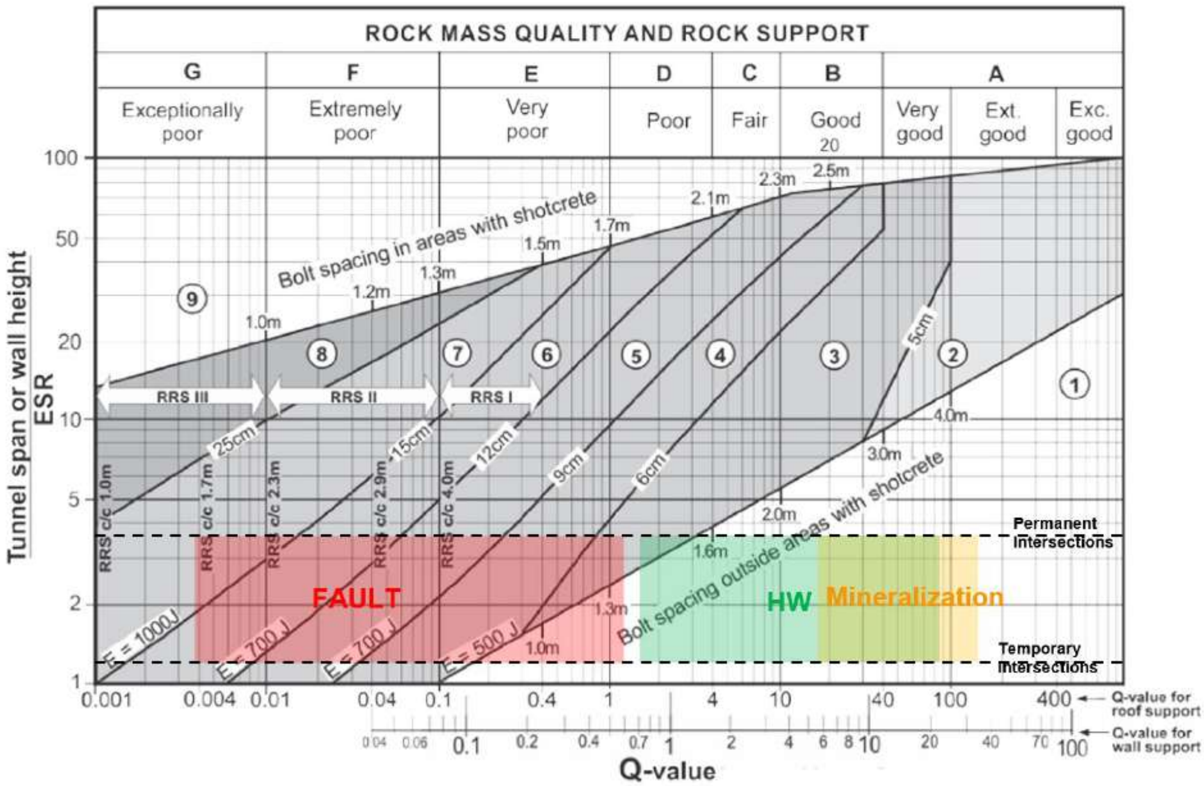


Figure 13-5 Ground Support Chart

13.1.7 Mine Access

Portal and incline locations were reviewed using four drillholes: JR95-081, GT23-005, GT23-001, GT23-006, within 200 m – 300 m (656 ft. – 984 ft.) of the proposed infrastructure. It was observed that the infrastructure is expected to be within the Dacite QFP unit and possibly in the Altered Dacite as shown in Figure 13-6. Core photo review was generally representative of the logged RQD, similar to the mineralized zone. Good rock quality was observed within the Dacite QFP; however, core photos and RQD were not available in the Altered Dacite (JR95-081) for review. Fault damage zones were observed in core boxes, which were not always captured in the lithology log but represented in RQD data.

It is recommended to reconsider the portal location to ensure it is situated within the Dacite QFP and away from the known Altered Dacite. Additionally, further data collection may be necessary around the portal access to better understand the spatial extent of the Altered Dacite.

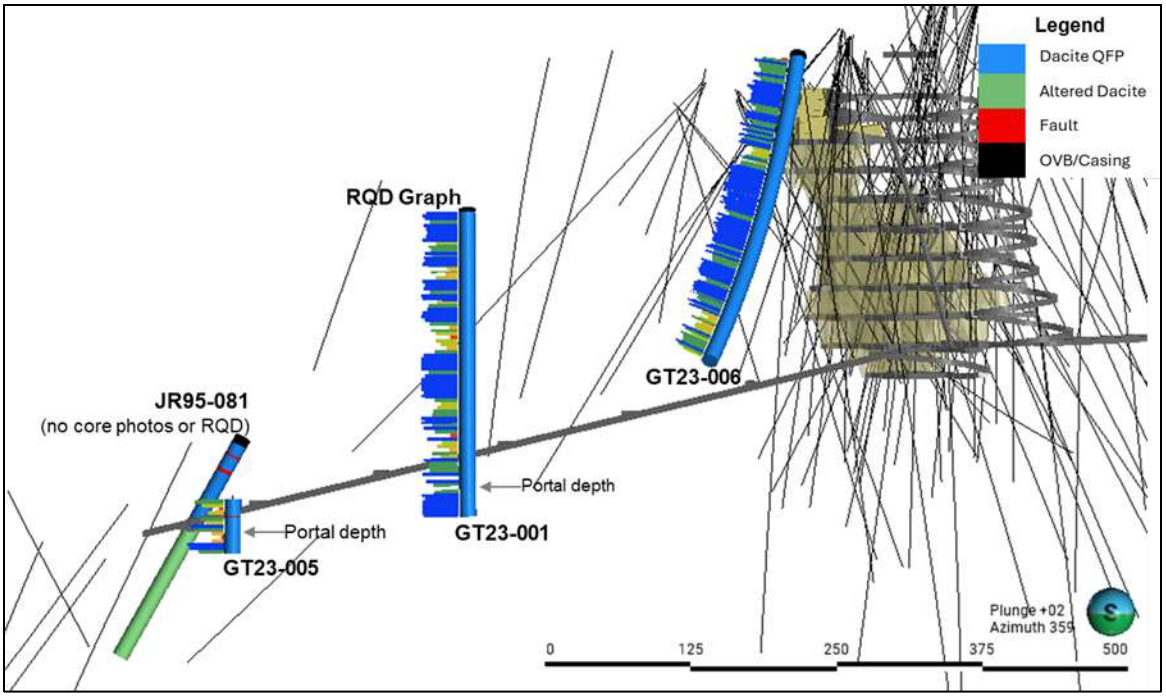


Figure 13-6 Drillhole data around portal and access decline with lithology and RQD as bar graphs along drillhole alignment

13.2 Hydrogeology

Hydrogeological conditions have been assessed during the 2023 drilling program (Piteau, 2023a) and resulting data used to provide an estimate of groundwater inflow rates over time as the underground development is carried out. This was originally done just for the access adit but updated by SRK in 2025 as part of this initial assessment.

To estimate inflows over the development schedule, the mine was separated into annual 'blocks' (Figure 13-7) and a range of inflows was estimated for each block as the mine development progressed.

Hydraulic conductivity values for the different rock types and conditions were based on work discussed in Chapter 6, with an upper and lower range based on whether the rock mass was limited fracturing ('Massive') to a more broken up rock mass ('Fractured') to provide possible range inflows.

Inflows for each block were estimated using the Goodman method (tunnel inflow methodology) and the Dupuit method to estimate the sustained flows to the stope development areas. Calculated inflow rates indicate a maximum inflow to the mine of approximately 10,500 L/min (15,000 m^3/d) assuming the more fractured rock mass is more representative of general conditions and provides a more conservative inflow rate for mine design and planning/costing (Figure 13-7).

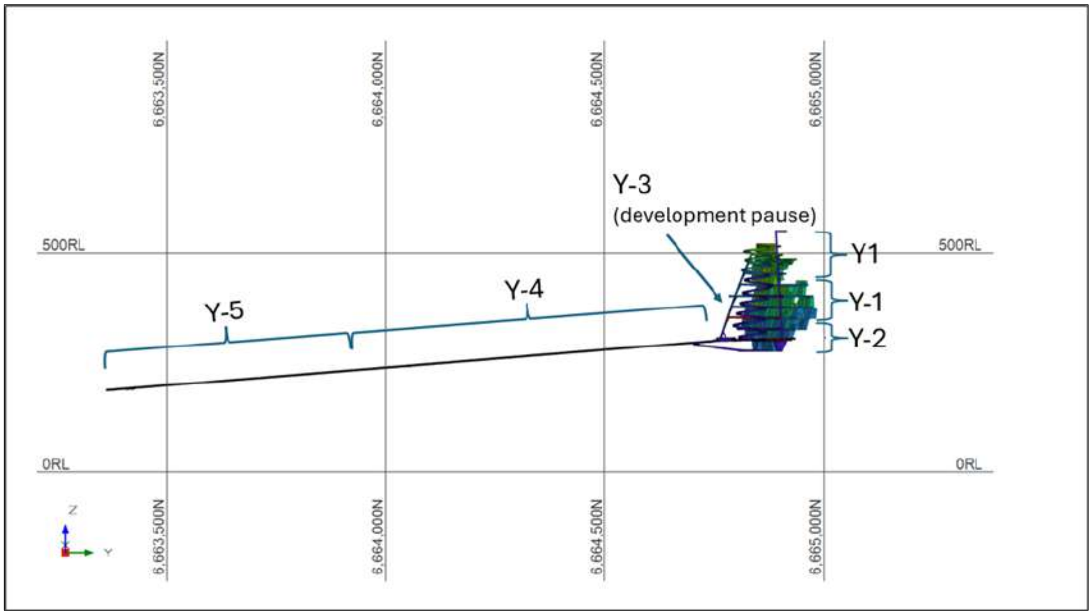


Figure 13-7 Development schedule used for in flow calculations

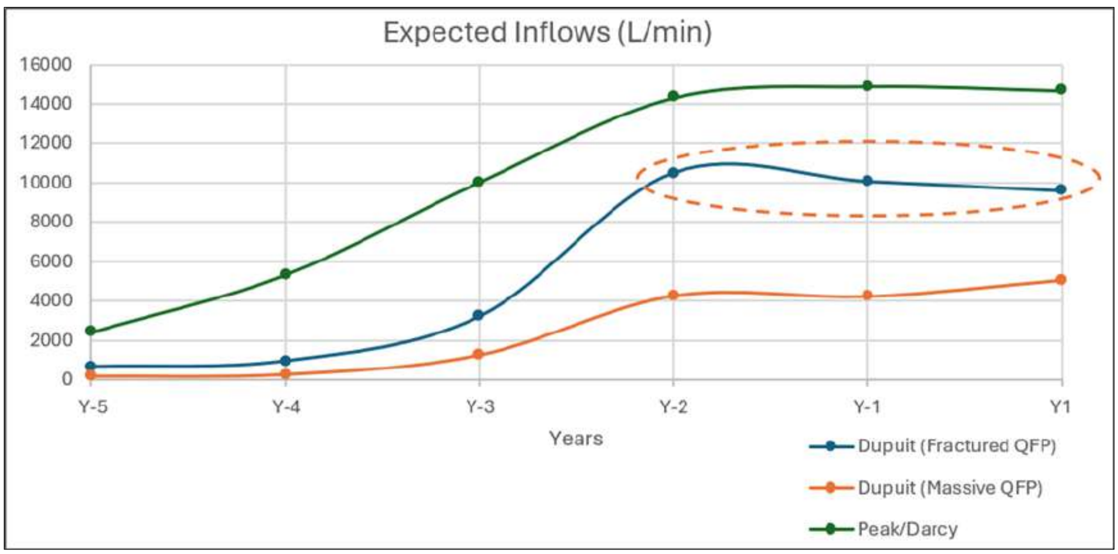


Figure 13-8 Estimated inflow rates vs time

13.3 Cut-off Value Calculations

SRK conducted a mining cost analysis for the Project, which included estimating the Net Smelter Return (NSR) per unit and benchmarking of operating costs to support a cut-off value (COV) for the stope design. SRK utilized various parameters in the NSR generation based on input from Contango, including processing recoveries, treatment, penalties and refining charges, metal payables, and royalty terms. Fixed metal recoveries were used for the purpose of this estimation. Given the time that had elapsed between the completion of the Mineral Resource estimate and the stope optimization, SRK elected to utilized metal prices that were aligned with current market conditions. The metal prices were based on consensus long-term forecasts from independent analysts and feedback from Contango. The metal prices used in the stope optimization were US$2,150 /tr. Oz. Au, US$26.00/tr. Oz. Ag, US$4.00/lb. Cu, US$1.25/lb. Zn, and US$0.95/lb. Pb.

Estimated operating costs for the Project were generated in order to complete the stope optimization required during the mine design process. These costs were benchmarked from similar projects, including both operating mines and mining studies, with data collected from both private databases as well as from the public domain. Cost information was sourced from projects with similar mining methods, mining rates, depth, labor costs, and geographical location. Based on experience, modifying factors were applied to certain cost items to scale them up or down.

Based on the geometry of the block model and some conceptual mining shapes generated at a range of COV, SRK estimated operating costs for three mining methods; transverse long-hole open stoping (LHOS), longitudinal retreat long-hole open stoping and cut & fill (C&F). All three methods have been employed in this study, depending on the local mineralization geometry and expected geotechnical conditions.

Table 13-2 provides a summary of the mining cost estimate used in the stope optimization process.

Table 13-2 Total Operating Cost Estimation for Stope Optimization (US$/t)

Operating Cost Item	LHOS	C&F
Mining	80.50	110.00
Surface Transportation*	42.25	42.25
Processing	36.05	36.05
G&A	19.25	19.25
Total	178.05	207.55

*intermodal transport via land and water

13.4 Mine Design

13.4.1 Mine Access

The Project will be primarily accessed via an inclined ramp (average grade of 6%) collared in the floor of the Johnson River Valley. Initially this incline will serve as an exploration access; during the mine's production phase it shall be used for material movement out of the mine as well as for bringing supplies, personnel, and equipment into the mine. A conceptual incline design was provided to incorporate into the overall mine design at the outset of this study. In addition to being suitable for the planned exploration activity, the collar location and ramp azimuth were selected for their favorable geotechnical and hydrogeological qualities, as well as that the rock to be excavated would be non-acid generating.

13.4.2 Underground Development

Lateral development will include the construction of a ramp, level accesses, hanging wall drives, Run of Mine (RoM) drives, slot drives, and infrastructure excavations. This development will be carried out using conventional underground equipment, including jumbos, rock bolters, and Load-Haul-Dump (LHD) equipment.

Lateral and ramp development required for the Project fits one of three design profiles. The exploration drift/mine access, internal ramp, and level accesses were designed with a 5.50 mH by 5.00 mW arched back profile. Lateral development in waste (e.g., HW drives, ventilation raise accesses, RoM pass accesses) was designed using a 5.00 mH by 5.00 mW arched back profile, while development within mineralization (RoM crosscuts, RoM drives, sill drives, cut and fill drifts, and cut and fill attack ramps) were designed with a 4.50 mH by 4.75 mW arched back profile.

The lateral and ramp capital development has been given a 15% “growth allowance” in the Deswik mine schedule to account for additional underground infrastructure such as re-muck bays, sumps, storages, cap and powder magazines, electrical station cut-outs, etc. Table 13-3 and Table 13-4 provide a summary of the typical dimensions for lateral, ramp, and vertical development.

The mine layout for the Project is shown in Figure 13-9, with closer views of the production mining area depicted in Figure 13-10(a & b) and Figure 13-11.

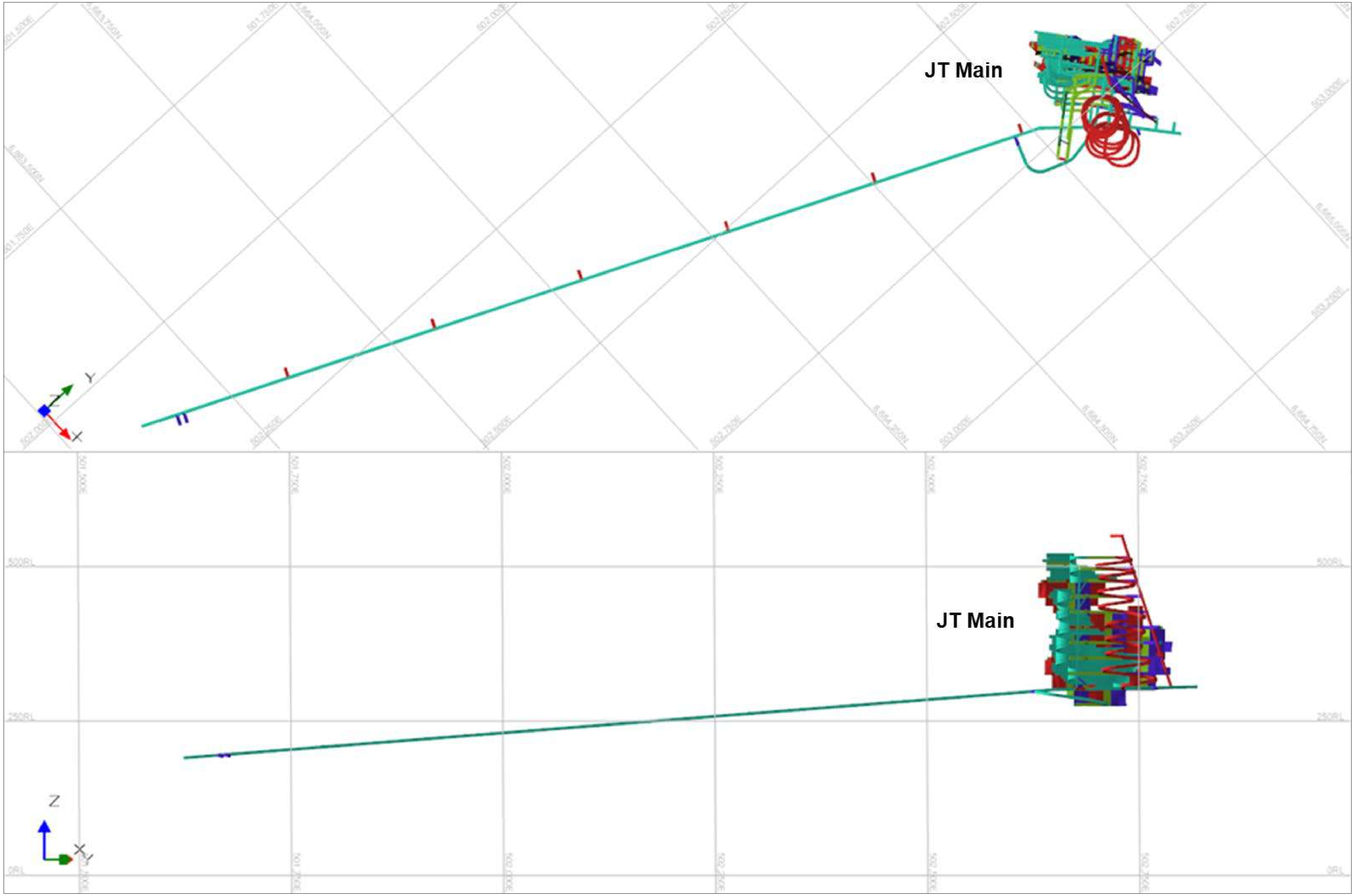


Figure 13-9 Plan View (Top) and Long Section Looking Northwest (Bottom) of the Johnson Tract Project

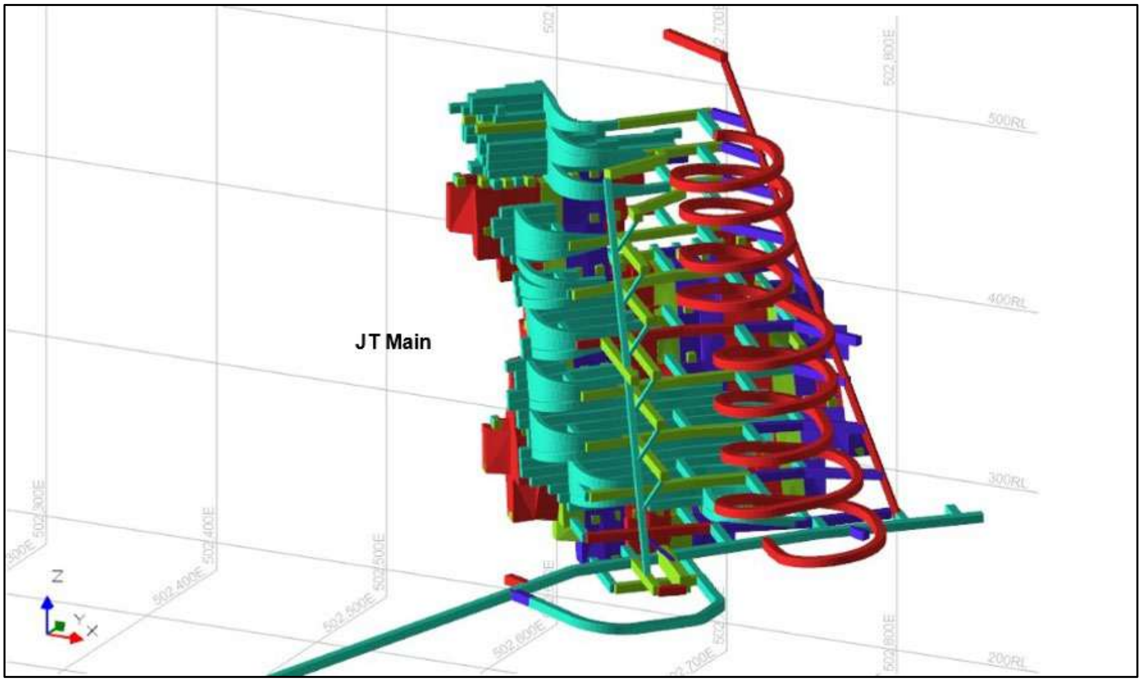


Figure 13-10a Isometric View of Production Mining Area (Looking Northwest)

Table 13-3 Lateral and Ramp Development Dimensions

Development Type	Height (m)	Width (m)
Level Access	5.00	5.50
Attack Ramp	4.75	4.50
RoM Pass Access	5.00	5.00
Truck Loading Drive	9.50	6.00
Return Air Drive	5.00	5.00
RoM Drive	4.75	4.50
Crosscut	4.75	4.50
Hanging Wall Drive	5.00	5.00
Slot Drive	4.75	4.50
Ramp	5.00	5.50

Table 13-4 Vertical Development Dimensions

Development Type	Diameter (m)
RoM Pass	3.50
RoM Pass Finger	2.00
Return Air Raise	3.50

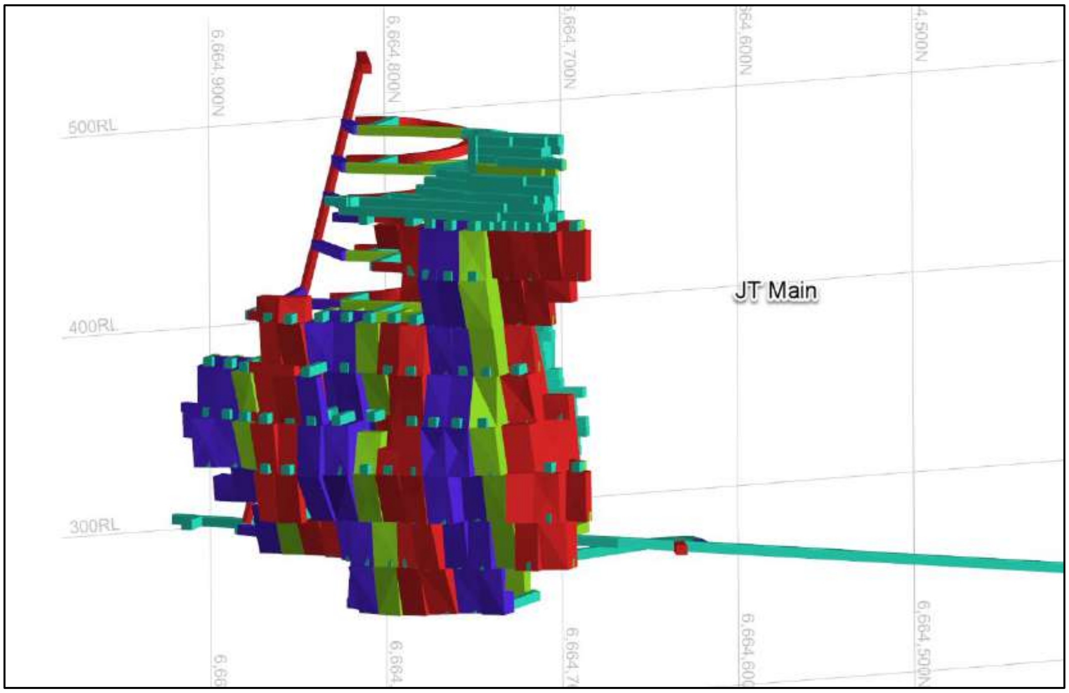


Figure 13-10b Isometric View of Production Mining Area (Looking Southeast)

13.4.3 Level Design

Mining horizons are accessed from a spiral, inclined ramp which connects to a HW drive on each level. The HW drives follow the contour of the mineralization and are offset toward the southeast at a minimum of 20 m to minimize adverse reactions from production blasting activity. Conventionally, mine infrastructure is situated on the FW side of mineral deposits; however, as the rock conditions in the HW QFP are better than in the FW material (tuff), the infrastructure for the Project is located in the HW. Future studies should re-evaluate footwall access once additional geotechnical drilling and analysis has been completed.

The mineralized zone is accessed using crosscuts collared from the HW drive that are angled roughly perpendicular to the Dacite Fault. The number of crosscuts per level has been minimized to reduce the number of times the Dacite Fault is crossed and thus reduce the risks associated with the long-term stability of the excavations that intersect the fault.

A representative depiction of the stoping layout at the Project are shown in Figure 13-11 (plan view).

Figure 13-11 Typical Level Layout (Plan View)

Long Hole Open Stoping

The stopes are primarily designed for extraction via the transverse LHOS mining method, with longitudinal retreat LHOS and C&F (both overhand and underhand) making up the remainder. The steeply dipping nature of the mineralized zone is well-suited for LHOS methods and should allow for a higher production rate.

The transverse LHOS mining method is suitable for thicker mineral deposits, as it involves establishing development perpendicular to the mineralization's strike in order to access stopes. A slot raise is typically developed first to connect the top and bottom sills. Production drill holes are oriented in a fan pattern, and rings are blasted into the slot. Stope muck is extracted via the bottom sill using load-haul-dump machines (LHDs) and trammed to the system of RoM/waste passes. Once all muck has been removed and the stope is confirmed empty, cemented rock fill (CRF) will be utilized to fill the mined-out voids.

Key parameters and items to consider for this method include the following:

- Suitable for mineralization possessing a width greater than 15 m.
- Suitable for areas where multiple mineralized zones converge and cannot be mined separately.
- Involves utilizing larger stopes for bulk mining. This method has reduced selectivity and is more development intensive (as compared to longitudinal methods).
- Allows the use of larger mobile equipment, especially LHDs.

This longitudinal retreat mining method is a version of the LHOS method that, due to the width of mineralization (as measured from HW to FW), allows for much of the development required for extraction to be placed within the mineralization. This method consists of establishing top and bottom sill development along the strike of the mineralization. The sills are connected with a slot raise and production holes that are drilled in parallel and blasted into the slot raise. The blasted material is mucked from the bottom sill development and the stope is then backfilled from the top sill. Once a stope is completely backfilled, the adjacent one may be mined in a retreating sequence (progressing either from one end of the level to the other, or from the level extents back toward the center, depending on geotechnical constraints and access locations).

The critical parameters and items to consider for this method include:

- Suitable for mineralized zones which are less than 8 m wide and possess a dip greater than 60º.
- Designed at 20 m sub-level spacing to ensure selectivity and manage drill hole deviation with smaller hole diameters.
- Top and bottom sill development may be wider than the mineralized zone, which could result in increased dilution.

13.4.4 Mechanized Cut and Fill

Mechanized cut-and-fill (C&F) mining methods are proposed for extraction of material below the crown pillar and against the Dacite Fault. Overhand C&F will be utilized in the area under the crown pillar, with the initial cut developed at the same elevation as the level access. Mineralized material will be removed in a similar fashion as other lateral development, using a conventional drill-blast-muck-support cycle. Development will begin in the center of the cut, with drives proceeding in a center-out fashion to the northeast and southwest until the end of the mineralization is reached. Multiple cuts may be simultaneously active on a level, provided the excavation is proceeding in a primary-secondary manner (from HW to FW).

After the cut is fully mined, it will be backfilled with CRF and allowed to cure before excavation is carried out adjacent to or above the cut. Following this, ramps will be driven to access the next cut above, where the process will continue as per the previous level. There are 3 planned levels of overhand C&F, with a level being comprised of between 2 to 4 cuts and each cut measuring 4.50 mH x 4.75 mW (to respect the crown pillar).

Against the Dacite Fault underhand C&F will instead be utilized. The cuts here will also feature dimensions of 4.50 mH x 4.75 mW to match the level spacing and LHOS stope offset from the fault. The same development cycle used with overhand C&F will be used in this instance as well, with some modifications to the extraction routing. The uppermost cut is extracted and backfilled first, with successive cuts being driven below. The cuts will begin on the southwest edge of the mineralization and continue to the northeast, running parallel to the previously mined longhole stopes. The mining of these cuts will also lag behind the stope mining by a few levels for stability purposes.

13.5 Production & Development Schedule

13.5.1 Development Sequence

Underground development will commence with the inclined ramp from surface in Year -5, from which multiple diamond drilling bays will be constructed to enable further exploration of the Deposit. The underground development will then be paused while the exploration drilling and related technical studies are completed. It is assumed that all of this work will be completed in the Project's Exploration Phase.

Following the successful completion of the requisite studies, underground development to the production area will commence at the beginning of Year -2. The mine development has been front-loaded in the schedule such that multiple mining fronts can be accessed and thus enable a quicker ramp-up in production. Year -2 features capital development almost exclusively, with operating development becoming more prevalent in Year -1. Development within mineralization begins in Year -1 and continues until the end of mine life.

13.5.2 Production Sequencing

First production from LHOS activities is planned for the latter half of Year -1, with longhole stoping activities continuing until the final stope is mined in Year 7. The stope sequence will start in the southwest corner of the bottom level and continue in a bottom-up manner. The stopes will be sequenced to retreat back to each RoM crosscut.

The cut and fill production begins toward the end of Year 3 to supplement the LHOS mining, as the latter begins to decline in Year 4 due to a lack of available mining fronts. The overhand C&F below the crown pillar is initiated first, followed by the underhand C&F against the Dacite Fault. In the final two years of the LOM, (Years 6 and 7), the C&F production is approximately equal to that produced from LHOS activities.

13.5.3 Life of Mine Production & Development Schedule

The lateral, operating and vertical development schedule over the LOM is depicted in Figure 13-12 through Figure 13-14 and Table 13-5.

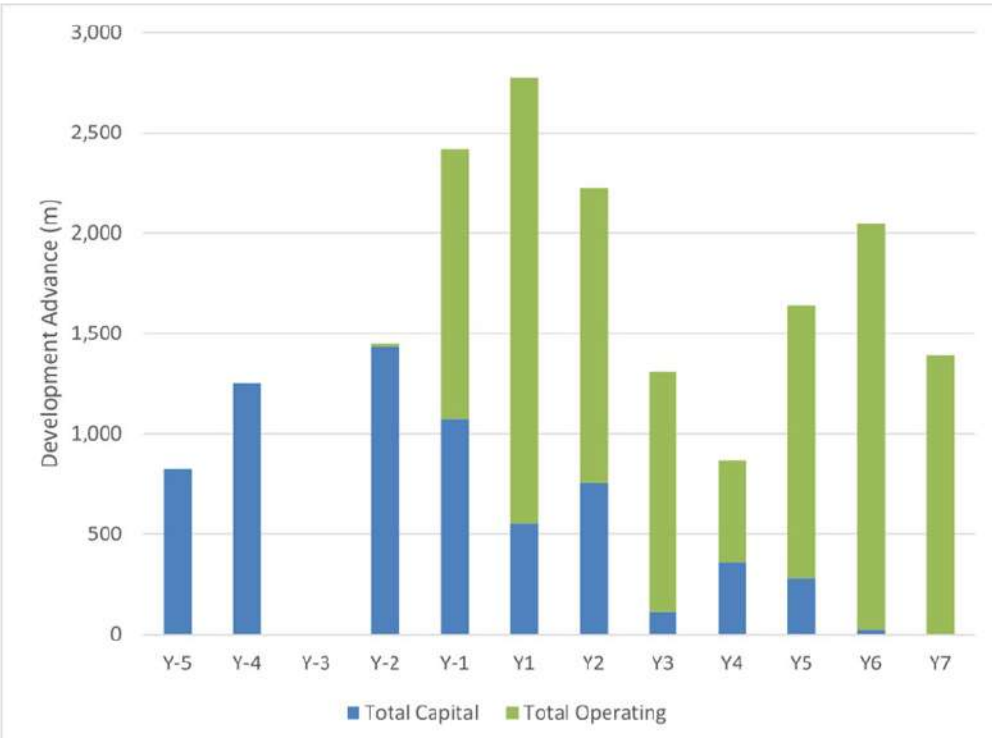


Figure 13-12 LOM Development Meters by Cost Type

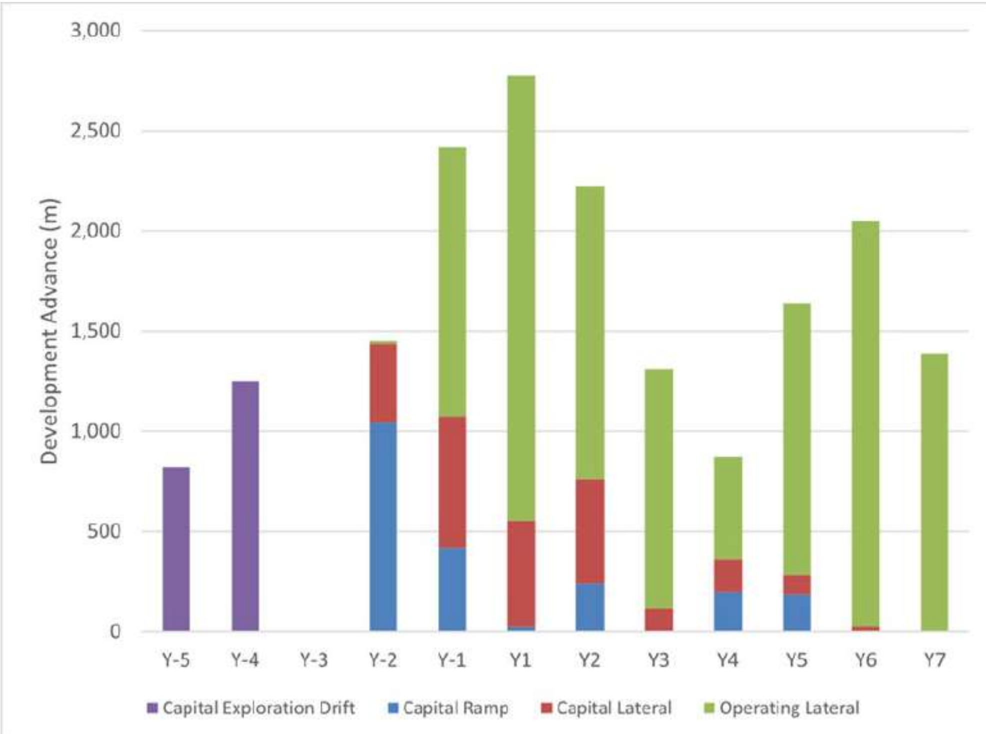


Figure 13-13 LOM Ramp & Lateral Development Advance

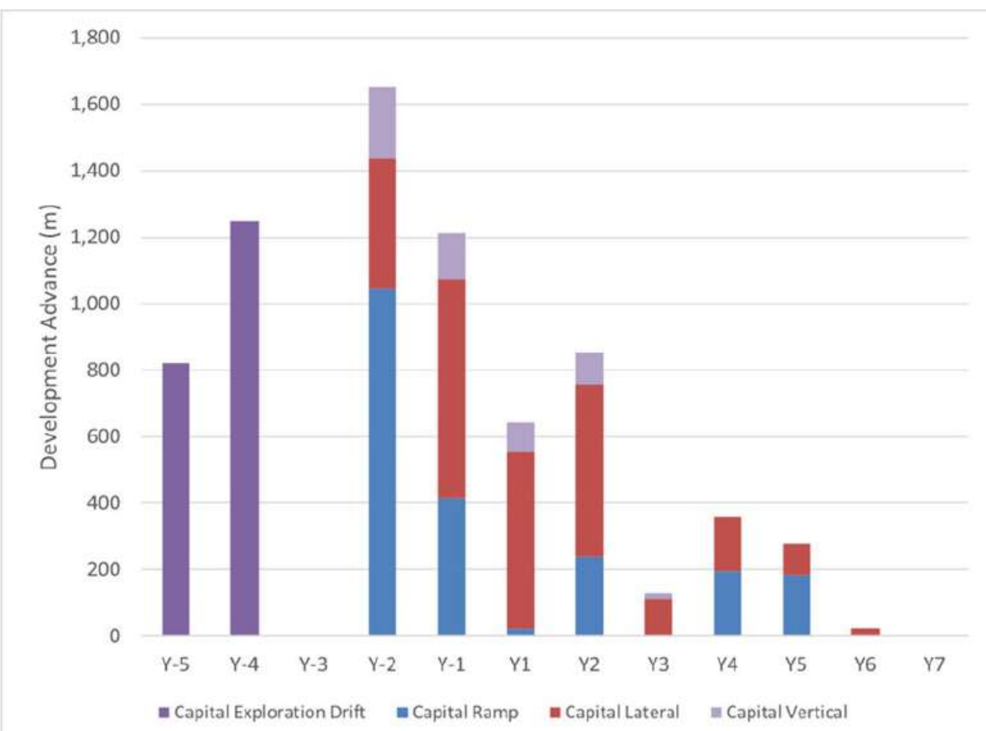


Figure 13-14 LOM Capital Development Advance

The annual RoM production tonnage and average NSR value over the LOM period are shown in Figure 13-15. Table 13-6 presents the annual material mined (separated by mineralized and waste), and Table 13-7 provides the total resource tonnage mined with corresponding average metal grades and NSR value per annum.

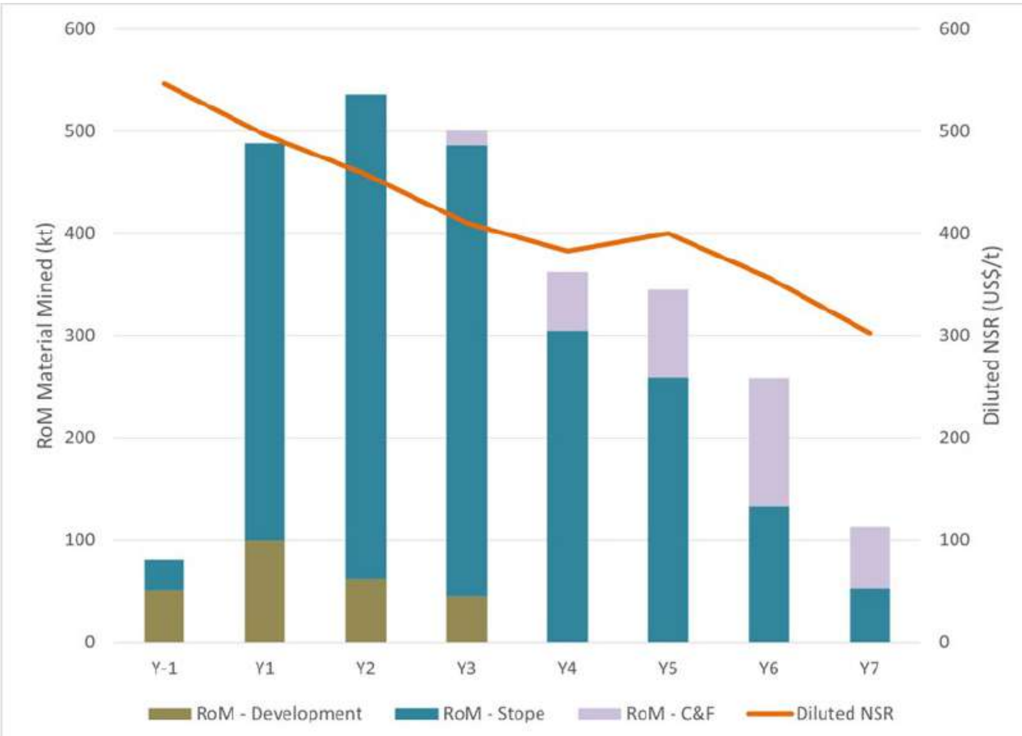


Figure 13-15 Annual Resource Production and NSR Values

*Table 13-5 LOM Development Summary per Annum (m)**

Development Type	Total	Y-5	Y-4	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7
Capital Exploration	2,073	822	1,251	-	-	-	-	-	-	-	-	-	-
Capital Ramp	2,098	-	1,045			417	22	238	-	194	182	-	-
Capital Lateral	2,501	-	-	-	392	658	533	520	112	165	96	24	-
Capital Vertical	557	-	-	-	217	139	87	96	18	-	-	-	-
Total Capital	7,229	822	1,251	-	1,654	1,213	642	855	130	359	278	24	-
Total Operating	11,530	-	-	-	13	1,345	2,219	1,467	1,200	512	1,363	2,022	1,389
Total Development	18,758	822	1,251	-	1,667	2,558	2,862	2,321	1,330	870	1,642	2,047	1,389

*Numbers have been rounded for reporting and may not sum

*Table 13-6 LOM Material Movement Summary (kt)**

Description	Total	Y-5	Y-4	Y-3	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7
RoM – Development	258	-	-	-	-	51	100	62	44	-	-	-	-
RoM – Stope	2,085	-	-	-	-	30	388	474	442	305	259	133	53
RoM – C&F	343	-	-	-	-	-	-	-	15	57	86	125	59
Total RoM	2,685	-	-	-	-	81	488	536	502	362	345	259	113
Development Waste	767	62	94	-	119	109	71	80	33	45	55	48	51
Total Mined Material	3,452	62	94	-	119	190	559	616	535	407	400	307	164

*Numbers have been rounded for reporting and may not sum

*Table 13-7 Total Resource Material Movement Over the LoM (Production Phase only)**

Item	Unit	Total	Y-2	Y-1	Y1	Y2	Y3	Y4	Y5	Y6	Y7
RoM Tonnage	kt	2,685	-	81	488	536	502	362	345	259	113
Au Grade	g/t	5.82	-	8.85	7.45	6.22	5.47	5.16	5.43	4.27	3.02
Ag Grade	g/t	5.44	-	4.00	5.10	6.11	6.25	4.76	4.94	5.33	5.09
Cu Grade	%	0.54	-	0.36	0.51	0.68	0.67	0.51	0.47	0.38	0.35
Zn Grade	%	4.72	-	2.44	3.68	4.99	4.62	4.51	4.70	6.21	7.28
Pb Grade	%	0.71	-	0.46	0.65	0.79	0.69	0.51	0.75	0.92	0.80
NSR	US$/t	424.76	-	546.12	496.44	457.72	410.23	382.46	400.23	356.54	302.40

*Numbers have been rounded for reporting and may not sum

13.6 Mine Operations and Infrastructure

The Project's underground infrastructure, both in terms of quantity and location, is dictated by the progression of the LOM schedule and is based on SRK's experience with similar types of mines. SRK reviewed a number of recent mining projects and studies in Alaska and Canada, as well as SRK's internal databases to form the basis for the UG infrastructure requirements.

13.6.1 Muck Handling

Mineralized and waste material handling will be completed using LHDs and haulage trucks. Stope material will be mucked from the drawpoint to the RoM pass on the level, or to a temporary re-muck bay if the conditions warrant. The RoM pass will feed into the storage located on 299 Level, just off the main access ramp. Muck from 489 Level and above will be dumped directly into the pass, as the upper termination point for the pass system is on Level 494. Between 475 and 350 levels (inclusive), muck will be tipped into finger raises that connect to the main pass, while RoM sourced from between the 325 and 275 levels will be trammed directly to the 299 Level storage.

RoM material will be rehandled into haulage trucks from the 299 Level storages and transported to surface. Development waste will either be hauled to a designated underground re-muck until it can be deposited as stope backfill or hauled to the designated waste pad on surface.

13.6.2 Material Handling and Storage

All underground supplies and materials will be warehoused in the level storage bays, designated explosives/cap magazines or other designated locations. As mining progresses, the storages should be consistently evaluated to ensure they are still crucial for operations and are re-purposed as necessary to minimize unnecessary development costs.

13.6.3 Backfill

The LHOS stope and C&F voids will be filled with CRF. The preference will be to utilize waste generated from underground development activities as the primary fill media, and thus the priority will be to minimize backfill costs through strategic movement of waste generated from lateral development by reducing the amount and distance required in re-handling. A CRF plant, waste rock storage and associated cement storages will be located underground, to better facilitate the backfill process during the fall and winter months. The material will be batched into haul trucks equipped with ejector beds that can deposit the CRF directly into the open stopes, with LHDs assisting as required. The underhand cut and fill stopes will also likely require the use of compaction equipment (e.g., rammer jammer) and installation of an engineered sill mat to ensure the stability of the cut above.

It is expected that all development waste will be re-used as backfill, or on-site construction requirements, and avoid requiring a permanent storage on surface. As the volume of available waste development rock is not sufficient to meet the backfill requirements over the life of mine, alluvial gravel from source(s) near the Project site will be used to make up the shortfall. Multiple sources of alluvial material are found in the vicinity of the Project and likely could be permitted for extraction since the land is privately held by CIRI and is under a lease with J T Mining. However, as naturally occurring sources that would meet the particle size distribution (PSD) requirements for a pumpable (i.e., paste or hydraulic fill) backfill of sufficient strength have not been confirmed, the decision was made to utilize CRF in this project and assess backfill trade-offs in a later stage of study.

13.6.4 Ventilation

The ventilation system will consist of a heated fresh air incline and a surface exhaust fan installation located in a short adit on 548 Level. The portal air heaters will be installed in an external portal extension similar to what has been used at other mines in the region so that the mine entrance can remain unobstructed for equipment passage. The escapeway will be installed in the exhaust raise and has been assumed as a Safescape Laddertube (or similar).

Fresh air is circulated from the portal, up the incline, up the spiral access ramp to the active levels, across the level to the exhaust raise, up the raise and through the exhaust fan(s) as shown on Figure 13-16. Airflow from the spiral ramp will be circulated to each level and directed to the exhaust, keeping the mining zone contaminants segregated from the rest of the ventilation system. The ramp development, and mining originating from 513 Level, will be exhausted through the uppermost exhaust regulator. Although there will be at times multiple haul trucks operating within the access system there will be sufficient airflow supplied through the whole of the ventilation system to provide dilution for their exhaust. However, as the secondary egress and all workings will be developed downstream of the active haul trucks, refuge stations will need to be maintained close to the mining levels. Portable refuge stations can be used for these applications so that they can be relocated with the level advancement.

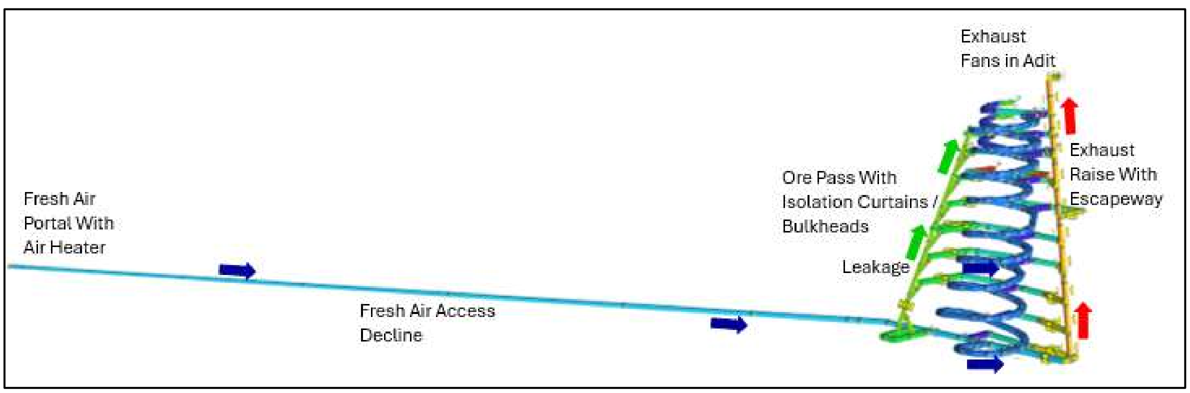


Figure 13-16 General Ventilation System Layout

Airflow Requirement

The overall airflow requirement is based on a combination of MSHA/NIOSH airflow requirements for individual equipment and a generic 0.06 $m^3/s/kW$ dilution rate for nonspecific equipment. In general, significant ventilation savings can be realized if the fleet is developed with full Tier 4 diesel engines and ultra-low sulfur fuel is used; however, for an early-stage study without a full, specific equipment fleet identified using generic dilution values is acceptable. For this project an airflow of approximately 300 kcfm (141 m^3/s) has been estimated which incorporates an allowance of 20% for leakage and equipment fleet growth.

The mitigation of diesel particulate matter (DPM) emissions will be a significant factor in the airflow requirement. The Project's airflow requirements are shown in Figure 13-17. Toward the end of the mine life the airflow requirement tapers off due to decreased development and production; however, should the mine life increase due to inclusion of additional resources the ventilation requirement will extend and the tapered section will be delayed.

Figure 13-17 General Airflow Requirement

Air Heating

The portal air heaters will be installed in a portal extension out of the way of passing equipment. The heated airflow will mix with the airflow moving through the center of the portal. A +2°C temperature design point was used to estimate the maximum duty point of the air heaters and to estimate the monthly operating requirements. The maximum duty point of the air heaters is approximately 3.35 MW (11.4 MMBTU). They will not be operated at this level for extensive periods of time; rather, their operation will be adjusted as the surface conditions change. If the outside temperature drops below -15°C either a lower intake temperature can be temporarily realized, or the system airflow can be decreased.

Main Exhaust Fan(s)

The main exhaust fan(s) will be installed in the access adit at the top of the raise on 548 Level, with power can be fed from the mine. The 300 kcfm (141 m^3/s) exhaust fan(s) installation will be required to operate at a pressure of approximately 4.9 in. w.g. (1.23 kPa) which includes a 15% installation loss. Allowing for a fan efficiency of 75% the installation will have a power requirement of approximately 310 hp (230 kW). The general fan power profile for the Project life is shown in Figure 13-18.

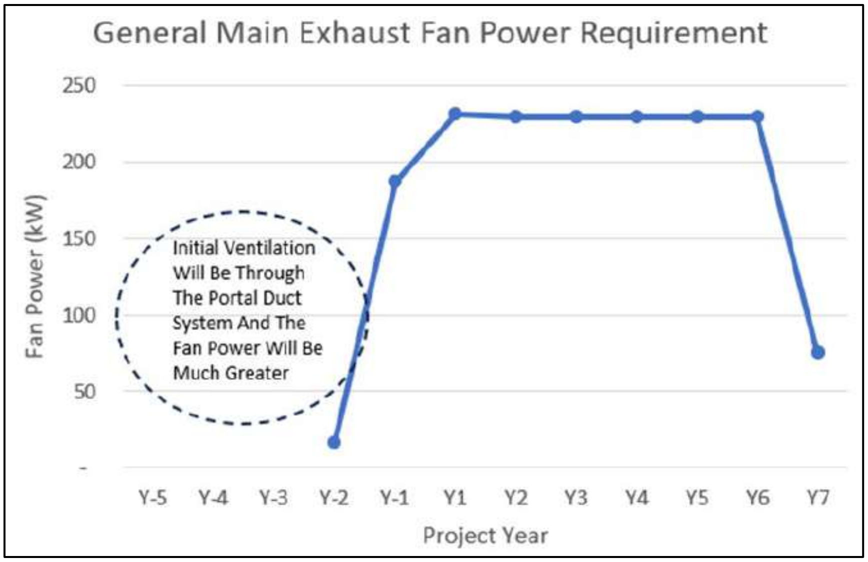


Figure 13-18 Main Exhaust Fan Power Requirement

Initial Development Ventilation

The initial development of the mine access, spiral ramp, and exhaust raise will be provided by two parallel 60-inch (1.5-m) diameter rigid ducts. Fans will be installed both at the portal and in series at stations along the length of the tunnel. This will require the installation of approximately ten 240 hp (180 kW) fans. Once the exhaust raise has been developed and the surface exhaust fan installed the rigid ducts can be removed and the fans decommissioned. These fans could be re-pitched and potentially used for level production.

Level Ventilation

The production levels will be ventilated with 135 hp (100 kW) fans and 48-inch (1.2-m) diameter duct. A single duct can be used bifurcated and used to ventilate multiple stopes. Approximately six 100 kW fans will be required.

13.6.5 Mine Dewatering

The dewatering system will be a dirty water system powered mainly by gravity flow. Each level will have level sumps located on the HW drift to collecting water from all sources which will flow via drain holes and pipeline to the main sump located at the top of the exploration ramp. This main sump will decant the slimes and discharge to surface ponds for recycling and/or treatment.

Some areas, such as the C&F stopes and 275 Level, may require larger pumps installed to propel water up to the closest level sump or the main sump.

13.6.6 Refuge Station, Latrines and Emergency Egress

Refuge stations will be located at strategic locations with a larger refuge station located at the top of the exploration ramp. Refuge stations will be portable refuge stations (MineArc or similar) of appropriate size; these will be relocated as needed throughout the mine life. Latrines will be located nearby each refuge station.

The emergency egress route will be up the return air raise which will be driven by Alimak and equipped with ladders (Safescape or similar). As the top of the return air raise is in mountainous terrain and difficult to access from surface, an allowance has been made for an emergency shelter equipped with heaters, emergency supplies, communications equipment and survival gear. This aspect requires additional examination in later studies to ensure the emergency shelter is fit for purpose considering the terrain, challenging access to the area, potentially deep snowpack, and potential avalanche risks.

13.6.7 Mobile Equipment Maintenance

A small UG mobile maintenance shop will be built at the top of the exploration ramp to support the production fleet. The shop includes allowance for a wash bay, fuel/lube bay, and two main service bays.

13.6.8 Power and Fuel Distribution

Power distribution will be via 13.8 kV main feeder cables from the portal to the main underground sub-station which will distribute to the various mine power centers.

Additional portable fuel systems will be installed as mining progresses; these will be self-contained units including automatic fire suppression and fire doors.

13.6.9 Automation and Communications

UG communications will include radio communications. Basic automation, Wi-Fi, and internet access will be enabled in core areas with the installation of fiber optic cable.

13.6.10 Mobile Equipment

Mining activities at the Project shall be undertaken with a fleet comprised of traditional underground equipment, based on typical productivity values for such equipment and the number of active workplaces at a given time. The decision was made to employ diesel-powered equipment in this study, as the near-surface setting, shape, and size of the Project will likely not result in any significant ventilation requirements (i.e., airflows and temperatures that meet MSHA and OSHE requirements can be achieved without investing in supplementary infrastructure for cooling purposes).

The cost estimation for the Contango Ore-owned underground and surface equipment fleets includes the initial purchase and re-build of the units. It has been assumed in this study that the capital development will be completed by a contractor that will furnish their own mobile equipment and labor.

13.6.11 Labor

At peak production (Years 1 through 3), the labor force is anticipated to total approximately 170 personnel, which is inclusive of roles for mine operations, maintenance, supervision and management, and technical services. Additional personnel will be required for the operation of the camp (administrative staff, cooks, cleaners, etc.) and have been assumed to be accounted for in the G&A costs, and as such are not represented in the headcount figure.

It is assumed that all capital development will be completed using a contract workforce supplying their own equipment. The contract crews will primarily be required during the Exploration Phase and during the early years of mine development; however, should mine production require short-term increases in the labor count then it is expected that a mining contractor will be used to assist in that endeavor.

14 PROCESSING AND RECOVERY METHODS

This section is not relevant to the TRS.

15 INFRASTRUCTURE

There are three main areas requiring surface infrastructure, the port facility, the camp facility and the mine portal area. There are no dams, leach pads, tailings facilities or pipelines planned, nor is there a plan to build a milling facility on site.

15.1 Aviation Facilities

The Project site is currently accessed solely via air with the airstrip being located near the existing exploration camp. A gravel airstrip (measuring approximately 800 m long by 30 m wide; 2,625 ft. long by approximately 100 ft. wide) provides access for small, fixed wing aircraft. There is also a helicopter pad which is used to support exploration activities.

No upgrades to the airstrip are currently included.

15.2 Port Facilities

A barge loading and unloading facility will be constructed in Tuxedni Channel to permit the movement of personnel equipment, supplies, and RoM (Run of Mine) ore material and containers to and from site. Once this facility is constructed it will become the primary means of site access and include a pier, small camp facility, laydown areas and storage facilities.

The barge facility is envisioned as using RoRo (Roll on, Roll off) shipping methods with the RoM materials being loaded into Rotainer shipping containers.

15.3 Roads

Currently existing roads are limited to the vicinity of the exploration camp, including to the airstrip and helicopter landing pad. Future roads will be constructed leading from the camp to the mine portal and from the camp to the barge facility, with additional roads built as required for accessing storage laydowns and temporary stockpile areas. Maintenance of the roads will be performed by site personnel using front end loaders, motor graders, water trucks, and snow removal equipment.

To access the portal area from the camp, two bridges will need to be built, with several additional bridges required to access the port facility. Further studies are required to optimize the road designs.

15.4 Buildings

There is an existing exploration camp used to support exploration activities in the summer. The exploration camp will be supplemented with a used, 100 room modular facility complete with kitchen, cafeteria, gym, and industrial laundry to support the operation.

A modular office and dry facility will be installed near the portal to support mine operations, including mine rescue and first aid facilities. A shop and warehouse facility will also be constructed along with cold storage facilities, electrical switch room, and a fuel bay for light vehicles and surface equipment.

15.5 Storage Areas

Storage at the port area will be laydown areas for shipping containers and tractor trailers being loaded/unloaded onto the barges.

Storage at the camp area will be limited to items needed for the camp and light vehicles.

The majority of the storage area will be located at the portal area including:

- Warehouse
- Cold storage facilities
- Laydown areas for ground support, piping, vent supplies, etc.
- Propane storage tanks for mine air heating
- Diesel storage (tanks or bladders)
- Hazardous materials storage
- Surface explosives storage magazine

15.6 Stockpiles

Stockpiles include a lined RoM pad (measuring approximately 90m x 90m; 295 ft. x 295 ft.) suitable for stockpiling several months of production during the roughly 6 weeks a year the mine cannot ship RoM material. The Rotainer shipping containers will be loaded at this location before being placed on a flatbed trailer and moved to the port facility.

The 500 kt waste rock management facility is also assumed to be lined, though this facility is expected to be temporary as all waste rock generated will be consumed as mine backfill before the end of mine life.

Both stockpiles include for a collection pond connected to the surface water management system.

15.7 Power Supply

The existing exploration camp includes diesel generators to provide power to the camp. During mine development and production, the generation capacity will increase to an estimated 7.5MW with the bulk of this located at the portal area. Diesel fuel storage for several months will be required on site to supply the generator sets as well as the diesel mobile equipment.

A propane tank farm will also be required to supply propane to the mine air heaters located at the portal area.

15.8 Water Management

Fresh water for the exploration camp is authorized through a 5-year Temporary Water Use Permit. Ground water can meet future camp needs pending required state permits and approvals.

Surface water for mine process needs will be sourced locally, pending required state permits and approvals.

The surface water management facilities located at the portal area include collection ponds, settling ponds and an effluent treatment plant.

15.9 Sources of Construction Materials

An environmental evaluation was conducted by Stantec in 2023 which identified six potential material sources for construction materials, these are labeled MS-JT-01 to 06 on Figure 15-1.

15.10 Infrastructure Layout Map

There are three main areas requiring surface infrastructure: the port facility, the camp facility and the mine portal area. Further studies are required to determine the optimal routing of the roads between these areas. A site plan for the primary infrastructure is shown as Figure 15-1.

Figure 15-1 General Site Plan – Source: SRK, 2025

16 MARKET STUDIES

The marketability of the concentrate from this project is influenced by its mineral composition, payable metal recoveries, and current treatment and refining charges (TC/RC). Market research and pricing data from Open Mineral, along with internal economic modeling, confirm that the concentrate aligns with market standards for custom smelting, though specific characteristics must be factored into commercial negotiations.

16.1 Lead Concentrate

Lead smelting is marginally profitable, making byproduct credits critical to overall marketability. China is the largest importer of seaborne lead concentrate. While markets outside China are expected to balance supply and demand, China is likely to face a consumption deficit, leading to a medium term global market deficit. Table 16-1 defines the commercial terms used for this analysis.

Table 16-1 Commercial terms used in economic analysis for Pb concentrate

Pb Concentrate			
Pb	95%		deduct 3 units
Gold	95%		Min 1.5g/t
Silver	93%		Min 50g/t
Zn	35.0%		
Pb TC	$200	/dmt	
Au RC	$20	/oz	
Ag RC	$2	/oz	
Export		CIF Main Asian Port	

16.2 Copper Concentrate

The global supply of copper concentrate from mines reached approximately 18 Mt in 2023. The copper concentrate market is expected to experience tight conditions over the medium term. Analysis of mines and projects indicates that even if all currently known projects become operational in the next few years, there will still be a significant gap in the available primary mined concentrate to meet demand. We used TC/RC rates that we believe may be expected over the medium to long term. Table 16-2 defines the commercial terms used for this analysis.

Table 16-2 Commercial terms used in economic analysis for Cu concentrate

Cu Concentrate			
Gold	98%		
Silver	90%		
Copper	97%		Deduct 1 unit
Cu TC	$80	/dmt	
Cu RC	$1	/lb	
Au RC	$5	/oz	
Ag RC	$1	/oz	
Export	CIF Main Asian Port		

16.3 Zinc Concentrate

The zinc concentrate should be highly marketable due to minimal deleterious elements. Global zinc production is expected to reach 12 million tonnes of contained zinc or about 24 million tonnes of concentrate. Table 16-3 defines the commercial terms used for this analysis.

Table 16-3 Commercial terms used in economic analysis for Zn concentrate

Zn Concentrate			
Gold	90%		deduct 1.5 grams
Silver	70%		deduct 3 oz
Zn	85%		deduct 8 units
Zn TC	$200	/dmt	
Au RC	$10	/oz	
Export	CIF Main Asian Port		

16.4 Pyrite/Gold Concentrate

The seaborne market for gold concentrate exports averages between 1.5 to 2.5 million tonnes per year, with individual concentrates varying significantly in value, from gold grades of 10 g/t to over 4 kg/t, and differing levels of deleterious elements. China is currently the largest market for gold concentrates; however, recent changes in product categorization rules could impact demand and commercial terms in this region. Concentrates with Fe + S exceeding 58% are now categorized as pyrite/gold concentrate and will be subject to a 13% VAT for the importer. Table 16-4 defines the commercial terms used for this analysis.

Table 16-4 Commercial terms used in economic analysis for Pyrite/Gold concentrate

Pyrite

Gold	95%	
Silver	90%	
TC	$150	/dmt
RC	$7	/oz
Export	CIF Main Europe Port. Subject to VAT and import fee into China.	

16.5 Summary

The project's four concentrates (Pb, Zn, Cu, and pyrite/gold) show no significant issues with their overall marketability. Major suppliers and smelters worldwide form a competitive landscape where entry barriers include high capital investment, regulatory compliance, and access to infrastructure. Given the concentrates' specifications, strategic partnerships may be necessary to optimize offtake agreements and mitigate market risks. Partnerships should be evaluated during future Pre-Feasibility and Feasibility studies.

17 ENVIRONMENTAL STUDIES, PERMITTING AND PLANS, NEGOTIATIONS OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUP

The surface lands and mineral rights of the proposed mine area (Project) are owned by the Cook Inlet Regional Incorporated (CIRI), an Alaska Native regional corporation, while the easements for a port site and transportation corridor to reach the mine area are located on public land administered by the U.S. Department of the Interior (USDI) National Park Service (NPS), Lake Clark National Park and Preserve (LCNPP) (Figure 17-1).

Use of the easements to conduct planning phase activities necessary to design, engineer, and permit the Project has been authorized in a NPS Decision Record dated January 15, 2025 (USDI, 2025). A single transportation route (either the North Corridor or the South Corridor) and single associated port site will be selected before the construction phase begins.

Construction of the proposed mine facilities located on land owned by CIRI, and the proposed transportation corridor and port easements located on land administered by the NPS, would require terrain modification and discharge of clean fills. Due to the number of wetlands within these areas, avoiding all discharges of fill into WOTUS would not be practicable. Therefore, the USACE would likely have authority over these actions and would be required to determine the Least Environmentally Damaging Practicable Alternatives to authorize under Section 404 of the CWA.

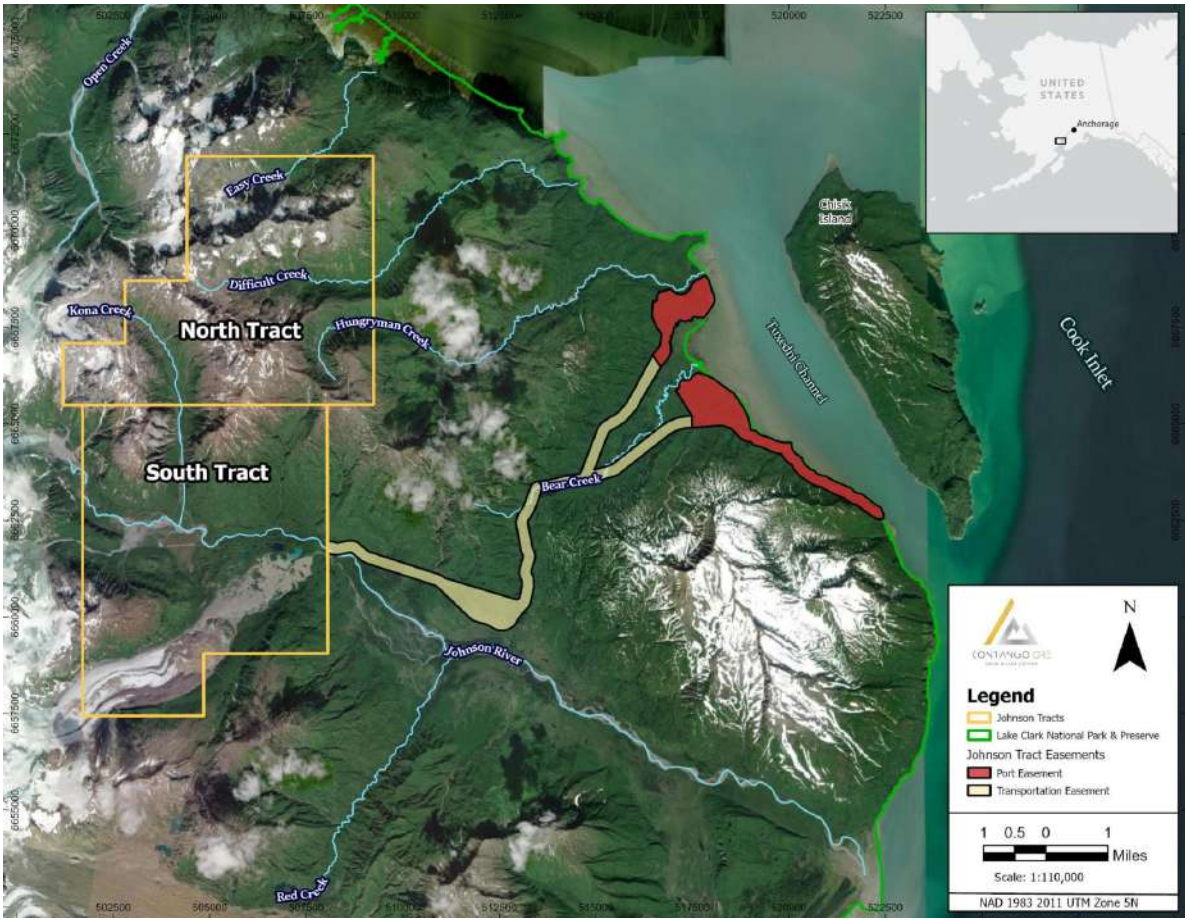


Figure 17-1 Mine Area (South Tract) and Easement Locations

17.1 Environmental Studies

As of January 2025, the following documentation regarding baseline resources has been prepared in support of development at the Project:

- An Environmental Evaluation Document (EED) (Stantec, 2023) has been prepared to support compliance with the National Environmental Policy Act (NEPA) for the development of the Johnson Tract Exploration Project, which is inclusive of development of new material sites, construction of an exploration access road and bridge crossings, upgrades to an existing airstrip, and development of an exploration ramp and associated facilities (portal pad, laydown, and staging pads). All activities presented in the EED are within the proposed mine area owned by CIRI. The EED was prepared as a planning-level document and includes limited field-level baseline characterization information for geochemistry and vegetation resources. Reporting for all other resources was reliant on desktop studies.

- An Environmental Information Document (EID) (Owl Ridge Natural Resource Consultants [ORNRCI], 2024) has been prepared in support of the conveyance of transportation and port easements to CIRI, as mandated by federal Public Law 94-204. The selected easement options presented in the EID are the result of four previous easement assessments performed since the

1990s whereby the proposed easement route goes over Bear Pass, instead of along the entire length of the Johnson River. The EID is an assemblage of available environmental data related to the easement locations.

- The Lake Clark National Park and Preserve (LCNPP), Johnson Tract Transportation and Port Easement Resource Analysis (Resource Analysis) (National Park Service, 2024) has been prepared to evaluate the proposed easement needed to provide access to the Johnson Tract within LCNPP. In addition to information presented in the EED and EID, this document also includes information regarding resources within Tuxedni channel tidelands, where portions of the proposed port facility would be constructed.

The baseline studies presented in the EED, EID, and Resource Analysis will likely be applicable in the state and federal permitting processes, but it is also likely that additional baseline studies specific to the full project buildout (mine area, transportation and port easements) will need to be performed in order to fill potential data gaps. A comprehensive list of baseline studies that will likely be required for permitting the Project are outlined in Table 17-1.

Table 17-1 Project Environmental Baseline Needs for Permitting

Environmental Baselines
Wetlands Delineation Surveys & Drawings / Reports
Cultural Resource Survey (Initiate Drafting of Section 106 PA) / Reports
Traditional Knowledge Survey (TK) / Subsistence
Populate Subsistence Survey with TK questions relevant to local indigenous peoples
TK / Subsistence Report (Uses and Impacts from project development
Preliminary table-top Health Impact Assessment (HIA)
Flora & Fauna Surveys – Threatened and Endangered (T&E)
Songbird, raptor, and small mammal surveys
Aquatic Habitat Baseline
Geochemical Characterization (construction material, overburden, and waste)
Characterization Status Report
QA/QC Program (test protocols for material characterization)
Draft Geochemical Characterization Project Plan
Gap analysis and evaluation of existing geochemical data base for adequacy i.e., ppm As, % S
Determine if sequential MWMP leach column testing and kinetic testing are required and what materials are needed for testing

Site specific waste neutralization calculation / ML projections	
Material sites characterization (Access roads, fill material, etc.)	
Surface & Groundwater Hydrogeology	
Groundwater wells for monitoring and numeric modeling	
Hydrologic pumping test	
Permit pump test/install wells and piezometers/complete pump test	
Downgradient hydrologic study	
Surface Water Hydrology	
Baseline Water Quality	
Site Wide Hydrology Analysis (Update Annually)	
Meteorological Monitoring /Ambient Air Quality Baseline Monitoring	
Air Monitoring Consultant	
Adequacy of instrumentation (wind speed elevation & direction criteria)	
Install additional instrumentation (if needed)	
Ambient Air Quality Baseline Monitoring (Requires 365 days total)	
Monitoring Report to ADEC (1 year of meteorological data)	
Preliminary Air Modeling to Establish Compliance Boundary	
Conduct Initial Model and Review model results	
Project Environmental Baseline for Permitting	
Assess initial operational controls for point and non-point sources	
Additional model runs (HAPS, CO, SO_X, NO_X)	
Socioeconomic Studies	
Visual impact analysis (including lighting assessment)	
Noise study and final report	
Engineering and Design (Needed for Permitting)	
Land Status – state/private (property rights to project footprint)	
Access (alternatives)	
Material sites identification (land status)	
Surface & Groundwater Hydrology for Operations/Closure	

Identify water sources for operations
Water balance for operation updated
Dewatering Study and Discharge Management Plan
Operations / Closure Water Quality Predictions
Source chemistry for water quality predictions for overburden and waste rock
Source chemistry for water quality predictions for construction material
Water treatability analysis and report
Geotechnical Drilling and Reports
Permafrost location and evaluation
Fondation analyses for port, etc.
Geotechnical Analysis for underground mine
Condemnation drilling
Alternative facility evaluation
Typical engineering design drawings – roads, culvert installations, ancillary facilities, etc.
Mine Model / Block Model
Life-of-Mine – overburden/ore/waste plan for permitting
Overburden and waste rock facilities locations
Alternative general arrangement drawings
Metallurgy
Metallurgical testing (bench tests)
Final design and reagents
Process flow sheet finalized
Energy Strategy (Decision on Power) for Air Quality
Project Environmental baseline for permitting
Generator Location

17.2 Environmental Study Results

Environmental issues that could materially impact the ability of the Project proponent to extract mineral resources or reserves have not yet been identified. Any relevant environmental issues that are discovered as the Project moves toward development will be recorded and addressed, as appropriate.

Baseline information for known resources is presented in the following sections. Information within the following sections has been adapted and summarized from the Resource Analysis, EED, and EID reports, as well as personal communications with J T Mining (Stantec, 2023; ORNRCI, 2024; National Park Service, 2024; J T Mining, 2025).

17.2.1 Geochemical Characterization

A static test characterization program was performed on samples collected in 2022 and 2023 in support of permitting the proposed underground exploration drift at the Project (pHase Geochemistry, 2024). The objective of the program was to assess the acid rock drainage (ARD) and metal leaching (ML) potential of waste rock that would be generated as part of the drift development. Overall, results indicated that the dacite quartz-feldspar porphyry (QFP) rock, which is representative of potential development rock from the proposed exploration drift, was low in sulfur (<0.1%) with low to moderate carbonate neutralization potential (average 13 kgCaCO3/t). All QFP samples classified as non-potentially acid generating (non-PAG) except for one sample that was considered uncertain due to differing classifications based on the measure of neutralization potential (NP) used to calculate NP/Acid Potential (AP) ratios.

With respect to solids metals content, two QFP samples were elevated in solids arsenic content in comparison to crustal abundances. One of these samples was suspected of contamination and was the same QFP sample considered to be uncertain on the measurement of NP. The other QFP sample with elevated solids arsenic content was also elevated in antimony. Leach tests indicated that QFP has low potential for metal leaching at neutral pH with the exception of possible arsenic as indicated in the rare anomalous sample with elevated solids arsenic content, and aluminum which would likely precipitate as aluminum hydroxide at circum-neutral pH conditions.

17.2.2 Watersheds

The Project is located in the Tuxedni-Kamishak Bays Alaska Subbasin (hydrologic unit code 19020602). Streams in this subbasin generally originate in high mountain areas and flow east a short distance before emptying into Cook Inlet. The two main drainages near the Project are the Johnson River, which begins at the toe of Johnson Glacier and flows southeast through the LNCPP to Cook Inlet, and Bear Creek, which has its headwaters at Bear Pass and flows northeast to the Tuxedni Channel. Hungryman Creek also drains a small segment of the proposed port area in the far northern corner of the easement.

17.2.3 Water Quality and Surface Water Hydrology

Continuous discharge records for the Johnson River indicate that average daily discharge in the river ranges from 1.5 cubic ft. per second to over 5,000 cubic ft. per second. Peak flow typically occurs in late June or early July due to snowmelt. Later in the summer, the river is primarily sustained by ice melt from Johnson Glacier and Double Glacier. In the fall, heavy precipitation events may increase the river flow well above the average daily flow rate. One such event occurred in October 2003 when the peak flow measured was over 10,000 cubic ft. per second. Water quality sampling data indicate that total dissolved solids (TDS) content is low, with average TDS values around 100 milligrams per liter or less, except for Hungryman Creek, where the turbidity is very low. Calcium is the dominant cation, and bicarbonate and sulphate are the dominant anions. Water quality samples collected to date contain relatively little magnesium, potassium, sodium, and chloride. Several samples collected between 2020 and 2023 were found to exceed State of Alaska water quality standards for protection of aquatic life. The constituents exceeding standards include total aluminum, total iron, total lead, total mercury, and copper.

17.2.4 Soils

Soils within the proposed mine area are cataloged by Natural Resource Conservation Service (NRCS) Digital General Soil Map of the United States for which information is collected at scales of 1:1,000,000. This level of mapping is designed for broad planning and management uses covering state, regional, and multi-state areas. The proposed mine area includes the following soil map units, which are rated as hydric soils:

- E23M4: Cook Inlet Mountains – Boreal Alpine – Mountains
- E24F1: Cook Inlet Lowlands – Boreal Lowland – Flood Plains, Terraces, and Fans

Hydric soils are formed under seasonal or year-round conditions of saturation, flooding, or ponding during the growing seasons which results in the development of anaerobic conditions. Hydric soils are one of three criteria used in determining wetland status. In addition to being hydric, soil map unit E24F1 is also considered to be poorly drained and susceptible to wind erosion.

Soils within the transportation and port easements is generically mapped as Maritime Upland Rock Barrens, Shrublands, and Forests, and more specifically the Typic Cryandepts (IAII), which exist in the high elevations of Bear Pass, and is prominent in the lower elevations on either side of the pass. The principal components are: Typic Cryandepts, on steeper slopes consisting of shallow, well-drained volcanic ash over very gravelly glacial till and bedrock on valley sides and rounded hills found on either side of Bear Pass; and Riverwash consisting of recent deposits of sand and gravel on floodplains and braided rivers.

17.2.5 Wetland and Waters

Wetlands in the area of the easements primarily include palustrine broad-leaved deciduous shrublands and emergent wetlands on terraces and mountain toeslopes along the Johnson River and in the lower Bear Creek valley. The majority of these wetlands are hydrologically connected to the Johnson River and are often associated with beavers, the dams of which impound water, elevating the water table of surrounding lands and forming marshes and shallow ponds in some areas. Palustrine shrub wetlands range from continuously saturated to seasonally flooded.

Wetlands in the proposed mine area are attributed to concave areas and depressions at the lower elevations within the alluvial fan. By extension, wetlands within the mine area are similar to those in the upper-reaches of the transportation easement.

Estuarine and marine wetlands are common in areas of the port area easement affected by the influx of tides. Throughout the estuarine wetlands are salt marshes that range from irregularly flooded by tide waters in the upper portions to regularly flooded in the lower portions. Marine wetlands occur below the lower salt marshes and encompass unvegetated mudflats that are regularly flooded by tide waters. Riverine wetlands also occur in the proposed easements, including eight headwater streams and three upper perennial rivers.

17.2.6 Vegetation

The Cook Inlet Mountains MLRA, which includes the proposed mine area, includes dwarf scrub and herbaceous communities, with low willow scrub common in drainages and dwarf shrubs dominating bedrock exposures and areas of very shallow soils. Above elevations of 7,500 ft., there is little to no plant growth.

At a broad scale, vegetation patterns in the area of the easements are driven largely by the maritime climate and the steep topography of the Aleutian Range. Sitka (*Picea sitchensis*) and Lutz (*P. X lutzii*) spruce forests are common at lower elevations near the coast, while small stands of Alaska paper birch (*Betula neoalaskana*) and cottonwood (*Populus trichocarpa*) forest occur in the forested zone in areas of relatively recent disturbance. Alder (*Alnus 223inuate*) and willow (*Salix* spp.) shrublands and graminoid and forb meadows dominated by bluejoint (*Calamagrostis canadensis*) and fireweed (*Epilobium angustifolium*) occur as a mosaic across broad areas of uplands at middle elevations. At the highest elevations, alpine tundra is characterized by dwarf shrublands, which commonly include Alaska bellheather (*Harrimanella stelleriana*) and netleaf willow (*S. reticulata*); sedge meadows, including small-awned sedge (*Carex 223inuate223223e223*) and short-stalked sedge (*C. podocarpa*); and lichen tundra (*Cladonia* spp.). By extension, vegetation within the mine area resembles that found in the upper elevations of the transportation easement.

The ebb and flow of tides in coastal environments form tidal flats characterized by salt marsh vegetation, including lesser saltmarsh sedge (*Carex glareosa*) and Ramensk's sedge (*C. ramenskii*). Freshwater wetland vegetation occurs in lowland and riverine environments in bogs and fens, depressions, off channel habitats on floodplains, on slopes with groundwater discharge, and along lake and pond margins. Bog vegetation is characterized by bog rosemary (*Andromeda polifolia*), roundleaf sundew (*Drosera rotundifolia*), bog cranberry *(Oxycoccus microcarpus*), and sphagnum mosses (*Sphagnum* spp.). Fen vegetation is characterized by Northwest Territory sedge (*Carex 223inuate223223e*), rock sedge (*C. saxatilis*), buckbean (*Menyanthes trifoliata*), and water horsetail (*Equisetum fluviatile*). At least one State of Alaska species of conservation concern (*Puccinellia andersonii*) has the potential to occur in the Tuxedni salt marshes.

17.2.7 Ichthyofauna

The Anadromous Waters Catalog identifies several waterbodies in the proposed mine area as providing habitat for anadromous fish including Dolly Varden [*Salvelinus malma*], coho salmon [*Oncorhynchus kisutch*], chum salmon [*Oncorhynchus keta*], and/or pink salmon [*Oncorhynchus gorbuscha*]. During surveys performed in in 2022 and 2023 by Alaska Department of Fish and Game (ADFG) and NPS, anadromous fish Dolly Varden, coho salmon, chum salmon, and/or pink salmon were documented in the Johnson River and Bear Creek drainages. Chum and pink salmon were generally documented in the lower reaches of these drainages, while coho were observed above the confluence with Red Creek, and Dolly Varden were well distributed throughout (including near the outfalls of Johnson and Double Glaciers in the Johnson River drainage and extending to the upper reaches and tributaries of Bear Creek). Hungryman Creek, adjacent to the port easement, has been mapped with pink salmon, chum salmon, and anadromous Dolly Varden present.

Other fish species observed included ninespine (*Pungitius pungitius*) and threespine stickleback (*Gasterosteus aculeatus*), and sculpin species (*Cottus* spp.). Flounder species were also observed within the Bear Creek drainage in smaller streams near their point of discharge into Tuxedni Bay. Several streams in the area of the proposed easements also support anadromous fish.

Johnson River, Bear Creek, and Hungryman Creek are illustrated on Figure 17-1.

17.2.8 Aquatic Invertebrates

In 2023, the Alaska Department of Fish and Game (ADFG) conducted aquatic invertebrate sampling at two locations within the Johnson River drainage: one high in Kona Creek and another in the upper reaches of the Johnson River itself. Twenty-four unique taxa were observed in Kona Creek, and 10 unique taxa were observed in the Johnson River. Chironomid invertebrates (midges) were the dominant taxa at both sampling locations. Aquatic invertebrate sampling was conducted in 1996 and 1997 within the Johnson River drainage and two sites within Bear Creek by NPS. Both sites within Bear Creek supported relatively high densities of invertebrates in August of 1996, largely dominated by chironomid species (although five invertebrate taxa were documented). The locations of Johnson River, Kona Creek, and Bear Creek are illustrated on Figure 17-1.

17.2.9 Avifauna

Waterfowl, shorebirds, seabirds, raptors and passerines reported to occur within, or reported to have potential to occur within, the LCNPP, are discussed below. By extension, reported passerines and raptor species are likely to occur within the proposed mine area as well.

The majority of Alaska's bird species are migratory, and few species remain in the area year-round. Migratory birds are protected under the federal Migratory Bird Treaty Act of 1918, while eagles are protected under the Bald and Golden Eagle Protection Act of 1940, as amended.

17.2.9.1 Waterfowl

Aerial surveys of bays, tidal estuaries, and coastlines have documented dabbling and diving ducks, sea ducks, geese, and loons occupying these areas. Dabbling ducks are most abundant during spring and fall migration, where thousands of ducks including mallards (*Anas platyrhynchos*), northern pintail (*Anas acuta*), green-winged teal (*Anas crecca*), American wigeon (*Mareca americana*), northern shoveler (*Spatula clypeata*), and others use the mouths of rivers and intertidal sloughmud flats for staging. The numbers of diving ducks, primarily greater (*Aythya marila*) and lesser scaup (*Aythya affinis*), peak during the spring migration, occurring almost exclusively in the intertidal zone of bays within 100 m of the water's edge. Sea ducks (primarily composed of scoters [*Melanitta* sp.]) occur in both intertidal and subtidal zones and are widely distributed within Tuxedni Bay, and they are the most abundant group of waterfowl in the LCNPP throughout most of the year. Geese, primarily Canada geese (*Branta canadensis*) occur almost exclusively within Tuxedni Bay within the LCNPP, and mostly during fall migration. Loons were most abundant in the fall, and three species of loon (common loon [*Gavia immer*], Pacific loon [*Gavia pacifica*], and red-throated loon [*Gavia stellata*]) breed in the LNCPP on near-coastal freshwater ponds.

17.2.9.2 Shorebirds

Aerial and ground-based surveys for shorebirds along the LCNPP's coastline were conducted in 1994 through 1996. The majority of shorebirds migrating through the area are composed of western sandpipers (*Calidris mauri*) and dunlins (*Calidris alpina*).

17.2.9.3 Seabirds

Several nesting colonies of seabirds exist in the vicinity of Tuxedni Bay/Channel along the coastline. Species documented at these colonies included black-legged kittiwakes (*Rissa tridactyla*), doublecrested cormorants (*Nannopterum auritum*), glaucous-winged gulls (*Larus glaucescens*), horned puffins (*Fratercula orniculate*), pigeon guillemots (*Cepphus columba*), and common murre (*Uria aalge*). Data collected from 1995 through 1999 indicated that some of these colonies, particularly colonies located on Chisik Island, were quite large. Counts of birds on Chisik Island during this period indicated that as many as 2,900 common murres and 16,500 black-legged kittiwakes were present on the island during the breeding season. The shoreline south of Snug Harbor, on the west side of Chisik Island, is heavily utilized by black-legged kittiwakes. The waters located between this shoreline and the adjacent shoreline of the LCNPP, within Tuxedni Channel, are major foraging/loafing areas for black-legged kittiwakes and horned puffin. Fossil Point is primarily a pigeon guillemot nesting colony, and Slope Mountain is primarily comprised of glaucous-winged gulls. The locations of a few of these seabird colonies have been compiled by the World Seabird Union and the Alaska Maritime National Wildlife Refuge. In part, due to the abundance of seabirds that are associated with Chisik Island during the breeding season, Chisik Island and Duck Island were established as a refuge in 1909. Later, in 1970, they were designated a wilderness, and in 1980, became a subunit of the Gulf of Alaska Unit of the Alaska Maritime National Wildlife Refuge. Seabird use areas are illustrated on Figure 17-2.

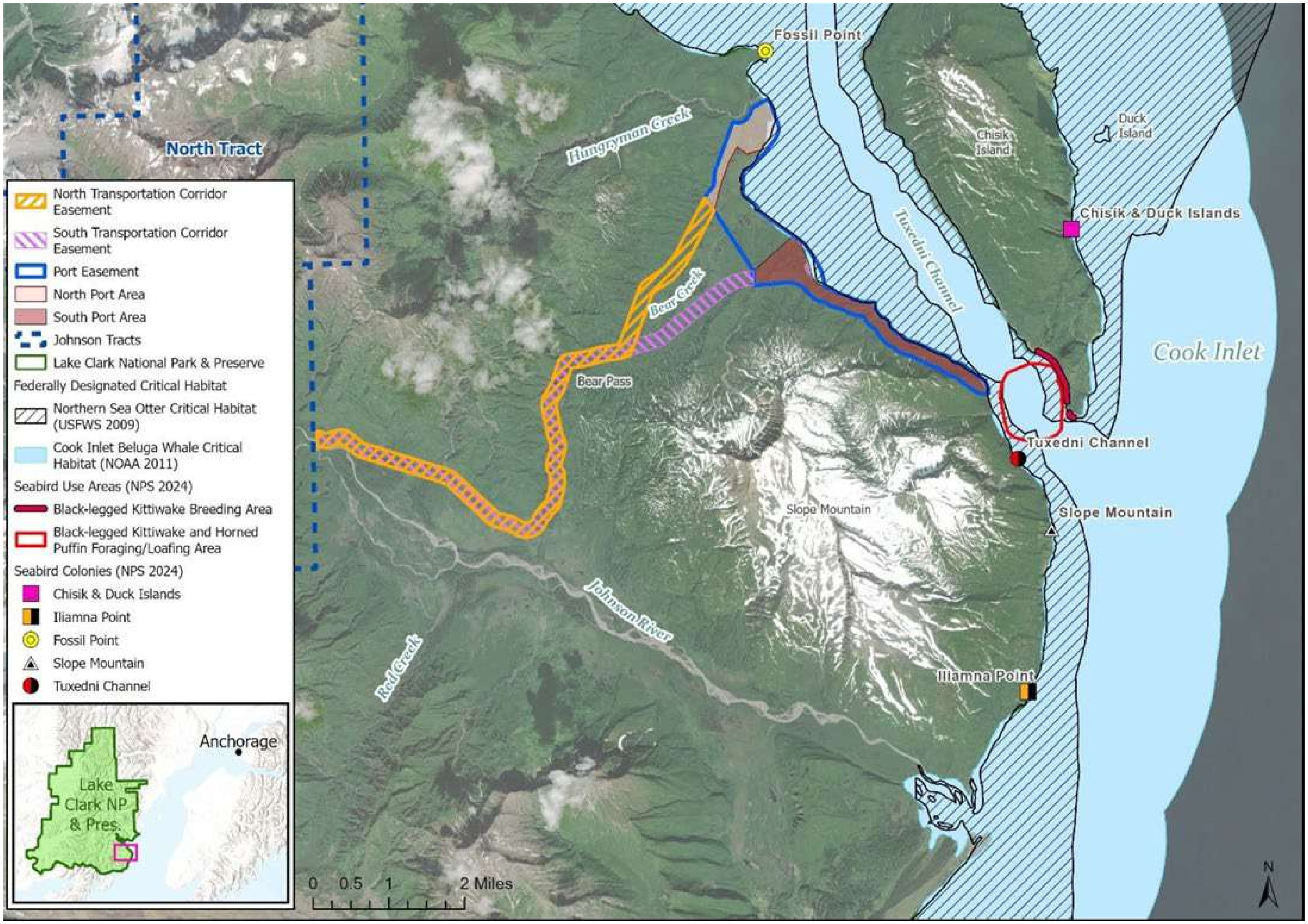


Figure 17-2 Critical Habitat and Seabird Use Areas in the Project Vicinity

17.2.9.4 Raptors

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), and peregrine falcons (*Falco peregrinus*) were documented breeding in the vicinity of the Project. Bald eagle nests are widely distributed throughout the Johnson River Valley, with 12 known nest sites. Three nest sites are known along the coastline in the Hungryman Creek and Bear Creek drainages. Golden eagles were documented nesting in the Johnson Creek drainage near Kona Creek, where suitable cliff nesting habitat is available. Bear Pass does not exhibit suitable cliff-nesting habitat due to a lack of large rock exposures.

17.2.9.5 Passerines

Avian surveys conducted during the early breeding season (specifically, mid-May to early June) documented 104 migratory bird species utilizing montane (alpine) habitats within the LCNPP. Combined with previous investigations, at least 166 bird species were documented within the LCNPP, including at least 40 species of conservation concern. Species were documented in a variety of habitats, including forest, tall shrub, low shrub, dwarf shrub, bare ground, and herbaceous habitats. The proposed easement locations cross a wide variety of habitats, as they traverse the LCNPP from the coast to relatively high elevations within the Johnson River drainage. Migratory birds occupying lower elevation riparian areas may include species like varied thrush (*Lxoreus naevius*) and Canada jay (*Perisoreus canadensis*). Middle elevation areas may be forested or shrub habitat, and may support species like golden-crowned sparrow (*Zonotrichia atricapilla*) and willow ptarmigan (*Lagopus lagopus*). High elevation, or alpine sites, commonly support rock ptarmigan (*Lagopus muta*) and snow bunting (*Plectrophenax nivalis*).

17.2.9.6 Marine Mammals

Numerous marine mammal species occur within Cook Inlet and Shelikof Strait, and some are known to regularly occur along the LCNPP's coastlines. Harbor seals (*Phoca vitulina richardii*), harbor porpoise (*Phocoena 227inuate227*), Cook Inlet beluga whales (*Delphinapterus leucas*), northern sea otter (*Enhydra lutris*), Steller's sea lion (*Eumetopias jubatus*), killer whales (*Orcinus orca*), fin whale (*Balaenoptera physalus*), and humpback whales (*Megaptera novaeangliae*) have been documented in this area. Species with federal protection under the Endangered Species Act of 1973 (ESA) are discussed separately in "Special Status Species" section (such as Cook Inlet beluga whale, Steller's sea lion, fin whale, and northern sea otter).

17.2.10 General Wildlife

Brown bear (*Ursus arctos*) and black bear (*Ursus americanus*) are common within the LCNPP. Within the vicinity of the proposed transportation easements, brown bear densities have been estimated to be at around 150 bears per 1,000 square kilometers. Bears wearing Global Positioning System (GPS) collars have demonstrated that they use the entire Johnson River drainage throughout the year, but they spend more time near marine environments or along the lower Johnson River Valley, where foraging opportunities are likely more abundant. Comparatively few collared bears were observed utilizing the Bear Creek drainage, although bears using this area may simply not have been collared or sampled.

Moose (*Alces alces*) are found throughout the Johnson River drainage. The middle and lower portions of the Johnson River Valley provide winter habitat with lower snow depth, numerous stands of willow (*Salix sp.*), and riparian areas associated with the river. The valley walls are steep and primarily vegetated with alder (*Alnus 228inuate*) which bound moose habitat. Similar, but more limited, habitat conditions are likely present in the Bear Creek drainage. It is likely that quantity of habitat, the presence of predators (such as bear), and deep overwinter snow conditions, restrict the population of moose in the area. Other terrestrial mammal species that are known from the LCNPP, and may occur in the area, include at least 24 species of small mammals, eight species of carnivore (such as red fox [*Vulpes vulpes*], wolf [*Canis lupus*], Canada lynx [*Lynx canadensis*], wolverine [*Gulo gulo*]), porcupine [*Erethizon dorsatum*], and North American beaver [*Castor canadensis*]). While Dall's sheep (*Ovis dalli*) and caribou (*Rangifer tarandus*) are specifically mentioned in the LCNPP enabling legislation, it is worth noting that they are not known to occur near the Project, and instead occur in the interior regions of the LCNPP.

By extension, general wildlife species reported to occur within the upper-reaches of the transportation corridor have potential to occur within the mine area.

17.2.11 Special Status Species

Special status wildlife species include species designated as endangered, threatened, or candidate species; their designated critical habitat by the U.S. Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) under the ESA (16 U.S.C. § 1531 *et seq*.); and federally listed species that are also protected by the Marine Mammal Protection Act of 1972 (16 U.S.C. § 1361 *et seq*.).

No ESA-listed species or designated critical habitats are known to occur within the transportation or port easements; however, several ESA-listed species and designated critical habitats are known to occur in the marine waters adjacent to the port easement area. These species include the Sunflower sea star (*Pycnopodia helianthoides*), Steller's sea lion, fin whale, humpback whale, and beluga whale. Critical habitat for the beluga whale is present in Tuxedni Bay. Of the ESA-listed species, the Cook Inlet beluga whale is of particular concern to NMFS due it its lack of recovery and the overall paucity of information available on their basic biology and ecology. As such, NMFS approaches regulating projects within Cook Inlet beluga whale habitat with heightened scrutiny. Critical use areas for the Northern sea otter and the Cook Inlet beluga whale are illustrated on Figure 17-2.

17.2.12 Subsistence Activities

Overall use of the area for subsistence harvest is not well documented; however, the NPS reports that there is a low level of subsistence use of the area, although the transportation and port easement areas are open for federal subsistence use. The region's primary subsistence resources are clams, sockeye salmon, caribou, moose, Dall sheep (*Ovis dalli*), brown bear, black bear, migratory and upland game birds, small mammals such as snowshoe hare, furbearing animals, berries, various plants, and dead and live trees for construction and firewood. To engage in subsistence activities within the LCNPP, individuals must either live inside the LCNPP, live in one of the LCNPP's six designated resident zone communities, or have a subsistence use permit issued by the LCNPP's superintendent. Iliamna, Lime Village, Newhalen, Nondalton, Pedro Bay, and Port Alsworth are designated resident zone communities, which are all located on the west side of the Chigmit Mountains. The Project is located on the east side of the mountain range and is not within a designated resident zone community zone.

17.2.13 Cultural Resources and Traditional Use

There are Dena'ina, Ahtna, and Sugpiaq place names in the Johnson Tract area. When translated, these place names document subsistence practices, travel routes, historical events, and the terrestrial and maritime environment of the area.

The Northern Land Use Research Alaska (NLURA) (2024) report, Cultural Resources Reconnaissance Report on NPS Lands in Lake Clark National Park and Preserve, Cook Inlet, Alaska, presents the results of a desktop assessment of the proposed transportation and port easement areas and a cultural resources reconnaissance survey of the area. Five historic-era cultural resources at four locations (KEN-00814, KEN-00815, KEN-00816, KEN00817) within the proposed transportation and port easement areas are listed on the Alaska Heritage Resource Survey (AHRS); no determination of eligibility for listing on the AHRS has been made for any of these resources.

The Snug Harbor cannery, located on the western side of Chisik Island, is listed on the National Register of Historic Places.

17.2.14 Land Use

17.2.14.1 Mine Area

The proposed mine area and surroundings host limited development. Aside from a small existing airstrip associated with the proposed mine area, there is no transportation connection outside of the valley. In addition to the airstrip, there are mineral exploration activities and a small mineral exploration camp facility with a road connection to the existing airstrip. Existing land use authorizations are in place to support Project development and are detailed in Section 17.3.

The proposed mine area is owned by CIRI and is surrounded by NPS-administered public land, and is adjacent to the Jay S. Hammond Wilderness Area to the west. CIRI is an Alaska Native regional corporation and its shareholders are of Athabascan, Tlingit, Haida, Tsimshian, Inupiat, Yup'ik, Alutiiq/Sugpiaq, and Aleut/Unangax descent. CIRI was created pursuant to the Alaska Native Claims Settlement Act of 1971 (ANCSA) and was incorporated on June 8, 1972. CIRI is owned today by a diverse group of more than 9,000 shareholders who live in Alaska and throughout the world.

ANCSA extinguished aboriginal land title in Alaska. It divided the state into distinct regions and mandated the creation of private, for-profit Alaska Native regional corporations, including CIRI. ANCSA also mandated that both regional and village corporations be owned by enrolled Alaska Native Shareholders. More than 50 years later, ANCSA, through Alaska Native corporations and tribally designated organizations, continues to empower Alaska Native people by promoting health and wellness, instilling culture and heritage, aiding economic growth, respecting Alaska Native values, and balancing the needs of current and future generations of shareholders. CIRI has leased the mineral rights associated with the proposed mine area to J T Mining so that mineral development can bring revenue to the CIRI members. A brief description of the ANCSA and the Alaska National Interest Lands Conservation Act (ANILCA) relative to the Project are summarized below:

Alaska Native Claims Settlement Act (ANCSA)

CIRI is one of 12 land-based Alaska Native regional corporations created pursuant to ANCSA. ANSCA provided for a process in which each of those Alaska Native regional corporations could select and withdraw lands from public ownership for their own use and ownership. During the ANCSA Native lands selection process, CIRI was not able to make its full land selection because most of the land in the Cook Inlet region was already under private, federal, municipal, or state ownership. Through the courts, and a subsequent negotiation process with the DOI and the State of Alaska, the Cook Inlet Land Exchange was passed by Congress and signed by the President in 1976 to fulfill CIRI's ANCSA land selections. Under the Terms and Conditions, Congress granted CIRI an entitlement to various property rights, including the Johnson Tract and the transportation and port easements. Congress explicitly mandated the conveyance of the easements to CIRI "as conveyances under the [Alaska Native Claims] Settlement Act." See PL 94-204, § 12(c), 89 Stat. 1145, 1152 (1976).

Alaska National Interest Lands Conservation Act (ANILCA)

Under the terms of Public Law 94-204, conveyances of the Johnson Tract and the associated transportation and port easements to CIRI are considered as conveyances under ANSCA. Section 910 of the ANILCA of 1980 states that conveyances, withdrawals, easement determinations, or other actions that lead to conveyances to Native corporations pursuant to ANSCA are exempt from NEPA review. Although conveyance of the proposed easements is not subject to analysis under the NEPA, construction and operation of the mine, selected transportation corridor, and port site are subject to all other relevant local, state, and federal regulations.

Although the types of access found in ANILCA park areas are generally more permissive than what is found in parks in the Lower 48, as noted above, Section 1110(a) specifically authorizes the Secretary of the Interior to issue "reasonable regulations" to protect the "natural and other values" of the affected area. This section also authorizes the Secretary to close an area otherwise open to these types of motorized vehicles for such "special access" if, after notice and a hearing in the vicinity of the affected area, the Secretary finds that such use would be "detrimental to the resource values of the unit or area." (NPS, 2024)

17.2.14.2 Transportation and Port Easements

Transportation and port easements are entirely within the LCNPP, while tidelands below mean high tide, where portions of the proposed port facility would be constructed, are owned by the State of Alaska and managed by the ADNR. Additional nearby wilderness areas include the Tuxedni Wilderness, which consists of two islands, Chisik Island and Duck Island (Figure 17-2). Chisik Island is across the Tuxedni

Channel from the port easements and at its closest point is less than 1 mile from the port area easement site. NPS-lands that encompass the port area easements and most of the north and south transportation corridors are in areas classified as "eligible wilderness". Eligible wilderness means that NPS has determined through a Wilderness Eligibility Assessment that the land possesses the qualities and character which would qualify it for possible future designation within the National Wilderness Preservation System. Eligible wilderness is managed to preserve wilderness character. Eligible wilderness can become designated wilderness through an act of Congress.

17.2.14.3 Recreation

There are no developments or lodges that would support recreation within the vicinity of the proposed mine area. Although the proposed mine area is currently leased to J T Mining, CIRI holds the right to grant access for recreational purposes.

The LCNPP is used for a variety of recreational activities by visitors year-round, including bear viewing, hiking, camping, backpacking, hunting, fishing, and backcountry skiing. Visitation to the LCNPP in 2022 was approximately 18,000 visitors, with 69 percent being day trips. The closest high-use area is Silver Salmon Creek, which includes the Johnson River at its northern boundary. In 2022, Silver Salmon Creek had 3,000 visitors, which accounts for approximately 16.5 percent of all visitors to the LCNPP. Also in 2022, 18 commercial operators originating from Homer, Kenai, Soldotna, and Anchorage reported a combined total of 3,000 bear viewing visitor use days in Silver Salmon Creek.

Waterways associated with the Project support salmon runs (Hungryman Creek and Bear Creek) and may be locations for recreational fishing; Johnson River also supports salmon runs, with guided sport fishing reported by commercial operators. Clamming is reported to occur in Tuxedni Bay north of Fossil Point and near Polly Creek. Setnetting, which is a type of passive fishing where nets are anchored in place to snag passing fish, occurs within Tuxedni Channel with several sites located off Chisik Island.

Four cabin sites are located in the port area easement for the south port area. Two cabins are on LCNPP land but predate the formation of Lake Clark National Park. These sites are occupied by residents in the summer and have been historically—but not exclusively—used for setnetting. An additional two cabins were historically used as summer-use setnetting support sites, are also on Park land but are unoccupied and show signs of disrepair. One cabin just south of the port area easement is privately owned and not on LCNPP or federal property. Additionally, approximately five cabins are located on the northern tip of Chisik Island, but the exact number and their use are unknown. The Chisik Island cabins are not located on NPS-administered public land.

Two commercial lodges are nearby and are marketed to recreationalists, the first is Snug Harbour Outpost, an old cannery located on the eastern side of Chisik Island and the second is Silver Salmon Lodge, located immediately south of Iliamna Point.

17.2.15 Socioeconomics

Socioeconomic effects as a result of the proposed Project would likely occur within Census Tract 1 of the Kenai Peninsula Borough. There are no incorporated boroughs, cities, towns, or communities in the vicinity of the Project.

Western Cook Inlet is a sparsely populated area, with a 2020 population of 214 individuals. It has seen a large decrease in population, with 373 people occupying the area in 2010. This is an annual rate of loss of 5.4%, at a time when both the Kenai Peninsula Borough and the State of Alaska increased in population (Table 17-2).

Table 17-2 Population in the Area of Analysis

Area	Population by Year		Average Annual Growth Rate	
	2010	2020	2000-2010	2010-2020
Western Cook Inlet	373	214	N/A	-5.4%
Kenai Peninsula Borough	55,400	58,799	0.60%	0.91%
Alaska	710,231	733,391	0.32%	0.19%

Source: Stantec, 2023

Census Tract 1 differs by racial composition from the Kenai Peninsula Borough and State of Alaska. Census Tract 1 is majority Alaska Native, with 58% of residents being Alaska Native, 25% being White, 3% Asian, and 1% Hawaiian/Pacific Islander. In contrast, the Kenai Peninsula Borough is a majority white community; with 81% of residents being white, 8% being Alaska Native, and 2% being Asian (Table 17-3).

These communities differ regarding the State of Alaska as a whole. The Kenai Peninsula Borough has more Caucasian people than the State of Alaska average, and Census Tract 1 has far more Alaska Natives than the State of Alaska average.

These differences are likely related to the different community histories of Western Cook Inlet and the Kenai Peninsula Borough. Western Cook Inlet is a historic Alaska Native region, with little infrastructure investment. The Kenai Peninsula Borough has seen the establishment of far more traditional western infrastructure, and population increases that have increased with the larger economy.

Table 17-3 2022 Racial and Ethnicity in Census Tract 1

Race/Ethnicity	Census Tract 1, Kenai Peninsula Borough	Kenai Peninsula Borough	Alaska
White Alone	25.4%	80.7%	62.3%
Black or African American Alone	0.0%	0.7%	3.2%
American Indian and Alaska Native Alone	58.0%	7.5%	14.6%
Asian Alone	2.7%	1.8%	6.4%
Native Hawaiian and Other Pacific Islander Alone	1.1%	0.4%	1.5%
Some Other Race Alone	4.3%	1.7%	1.9%
Two or More Races	8.4%	7.3%	10.0%
Hispanic or Latino	5.9%	4.4%	7.3%

*Apparent inconsistencies in sums are the result of rounding.

Source: Stantec 2023

Employment data is not available specifically for Western Cook Inlet. The State of Alaska does publish statistics for the Kenai Peninsula Borough. 2022 annual unemployment in the Borough was 4%, which closely matches the unemployment for State (4.5%). Table 17-4shows the 2022 labor force and unemployment statistics in the Kenai Peninsula Borough and State of Alaska.

Income and poverty data are available for Census Tract 1, the Borough, and the State. Census Tract 1 has median annual household income of $41,250, significantly lower than the Borough ($70,609), or Alaska ($80,287). 41% of Census Tract 1 residents live below 150% of the poverty level, a higher number than Borough (19%) or Alaska (18%) residents (Table 17-5).

Table 17-4 2022 Labor Force and Unemployment

Sector	Kenai Peninsula Borough	Alaska
Labor Force	28,188	356,799
Employment	26,918	342,400
Unemployment	1,270	14,399
Unemployment Rate	4%	4.5%

Source: Stantec, 2023

Table 17-5 2021 Median Household Income and Poverty Rate of Individuals in the Area of Analysis

Location	Median Annual Household Income	Individuals Below 150% of Poverty Level
Census Tract 1, Kenai Peninsula Borough	$41,250	41%
Kenai Peninsula Borough	$70,609	19%
Alaska	$80,287	18%

Source: Stantec, 2023

17.2.16 Environmental Justice

Effects to environmental justice populations would likely occur within Census Tract 1 of the Kenai Peninsula Borough. This is the western Cook Inlet summary area for the vicinity of the proposed mine area. There are no incorporated boroughs, cities, towns, or communities in the vicinity of the proposed mine area.

Council on Environmental Quality (CEQ) guidelines for evaluating potential adverse environmental justice effects indicate minority populations should be identified when either:

- a minority population exceeds 50 percent of the population of the affected area, or
- a minority population is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Executive Order 12898 states that population groups defined as minorities include American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic/Latino origin; or Hispanic/Latino.

Low-income populations are those communities or sets of individuals whose median income is below the current poverty level of the general population. In identifying low-income populations, federal agencies may consider as a community either a group of individuals living in geographic proximity to one another or a set of individuals (such as migrant workers or Native Americans) where either type of group experiences common conditions of environmental exposure or effect.

The Census Tract 1 of Kenai Peninsula Borough contains a minority population, with 58% of residents being Alaska Native, 3% Asian, and 1% Hawaiian/Pacific Islander. In contrast, 14.6% of Alaskan residents are Alaska Native (Table 17-3). This qualifies the population within the area of analysis as an environmental justice population.

The Census Tract 1 of Kenai Peninsula Borough is also a low-income population, with 41% of individuals living below 150% of the poverty level. In comparison, 18% of Alaska residents live below 150% of the poverty level (Table 17-5).

The project proponent is CIRI, an Alaska Native Corporation. This organization is an environmental justice population.

17.3 Permitting Requirements

17.3.1 Existing Permits for Exploration Stage Permitting

The Project is currently permitted for exploration activities and associated infrastructure at the Johnson Camp. Special Use Permits (SUPs) have been in place annually to support baseline data collection activities within waterways and on NPS-administered public lands associated with easement areas; a new SUP for baseline data collection during the 2025 field season will be applied for, if needed. Permits and authorizations that are currently in place for the Project are detailed in in Table 17-6.

Table 17-6 Existing Permits

Issuing Body	Authorization	Document Number	Date of Issuance	Renewal Date	Note
Cook Inlet Region, Inc. (CIRI)	Exploration Agreement	n/a	01-Jul-23	01-Jul-28	Business arrangement for J T Mining to conduct exploration and evaluation of mineral potential and ore resources on CIRI's lands in the Tuxedni (North Block) & Iniskin (South Block) areas
Alaska Department of Natural Resources (ADNR)	Multi-Year Hardrock Exploration & Reclamation	APMA #3253	16-May-23	15-May-28	Letter noting that no APMA approval is needed from ADNR to conduct less than 5 acres of disturbance. APMA number is linked to reclamation reporting requirements and TWUAs
	Temporary Water Use (TWUA)	TWUA F2023-065	29-Jun-23	31-Dec-27	Five water withdrawal draw points to support diamond drilling.
	Temporary Water Use (TWUA)	TWUA F2022-094	21-Sep-22	20-Sep-26	Four water withdrawal draw points to support diamond drilling.
Alaska Department of Fish and Game (ADFG)	Fish Habitat	FH22-II-0099	22-Jun-22	31-Dec-26	Approves nine water withdrawal sources authorized under the TUWAs.
	Fish Habitat	FH23-II-0051	01-Jun-23	30-Sep-27	Approved installation of two gauging stations in Johnson River
	Fish Habitat	FH23-II-0052	05-Jun-23	30-Sep-27	Approved installation of one gauging station in Kona Creek
	Fish Habitat	FH23-II-0054	06-Jun-23	30-Sep-27	Approved installation of one gauging station in Ore Creek
Alaska Department of Conservation (ADEC)	Section 401 Certification of Reasonable Assurance	POA-2023-00115	20-Oct-23	na	Provides the DEC/State of Alaska with the authority to review a federal application that might result in a discharge into WOTUS and ensure this discharge will comply with State water quality standards.

Issuing Body	Authorization	Document Number	Date of Issuance	Renewal Date	Note
	Public Water System	PWSID#249261	26-Jul-23	na	Approval to operate a public water system at Johnson Tract Camp.
	Domestic Wastewater	PA-29073	23-Jan-24	na	Approval for the operation of the Johnson Camp septic field.
	Solid Waste Permit	SW3CAMPA091-28	24-Aug-23	na	Authorizes the Class III Camp Landfill at Johnson Tract Camp for disposal of septage and ash.
Alaska Department of Natural Resources (ADNR)	Reclamation Plan Approval (RPA)	A20243253RPA	26-Apr-24	26-Apr-29	Approves reclamation and bonding associated with surface infrastructure to support an underground exploration drift (as defined by 404 permit). Bond for $726,000 USD required prior to construction activities.
	State of Alaska Water Rights - Permit and Certificate of Appropriation	LAS 34436	10-Feb-23	na	Water rights for Johnson Camp potable water; associated with land title
Unites States Army Corps of Engineers (USACE)	404 Permit	POA-2023-00115	10-Sep-24	31-Aug-29	Authorizes associated wetland disturbance due to construction of road to portal and airstrip expansion
U.S. Department of the Interior, Lake Clark National Park and Preserve	Decision Record; Lake Clark National Park and Preserve Johnson Tract Transportation and Port Easements	Na	15-Jan-25	na	Decision Record addressing the conveyance of the easements.
	Deed of Transportation Easement for the Johnson Tract, Alaska	Na	15-Jan-25	na	Defines the preliminary geographic boundary of the port easement. Authorizes activities under the planning phase
	Deed of Port Easement for the Johnson Tract, Alaska	Na	15-Jan-25	na	Defines the preliminary geographic boundary of the port easement. Authorizes activities under the planning phase.

17.3.2 Permitting Requirements for Mine Development

Due to the proposed easements being located on public land administered by the NPS, as well as the presence of WOTUS within the proposed Project area, authorization of the mine will be subject to NEPA review and disclosure process under an Environmental Assessment (EA) or an Environmental Impact Statement (EIS), depending on the significance of potential impacts associated with the proposed mine. Typically, an EA is prepared if a proposed action will not have significant environmental impacts, while an EIS is typically prepared if a proposed action is determined to significantly affect the quality of the human environment.

As the Project moves toward the development of feasibility-level engineering studies, additional and comprehensive environmental baseline studies will need to be prepared and used to inform consultation with stakeholders and regulators for review under NEPA. The timing of the NEPA processes can be quite variable, and may affect project construction if not carefully managed. A thoughtfully designed mine plan that minimizes impacts and presents effective mitigation measures (if necessary) is paramount to a successful NEPA process and the successful establishment of a future mining operation. In addition to the NEPA process, completion of the following major permit applications and consultations will likely be required prior to authorization of the proposed mine, road, and port facility:

Federal Permit Applications and Consultations:

- U.S. Army Corps of Engineers (USACE)
  - Nation Wide 6 and Individual Permit under the CWA Section 404, Dredge and Fill
  - Rivers and Harbors Act, Section 10 Permit
- National Oceanic and Atmospheric Administration (NOAA)
  - Essential Fish Habitat Consultation for Port Facility
- U.S. Fish and Wildlife Service (FWS) and NOAA
  - Marine Mammal Protection Act MMPA and Incidental Harassment Authorization
  - ESA Section 7 Consultation and Incidental Take
- U.S. Coast Guard
  - Engineering review on piers
- Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF)
  - Authorization for storage and use of explosives
- National Park Service
  - Description of next step of authorizations

State of Alaska Applications and Consultations:

- Alaska Department of Natural Resources (ADNR)
  - Multi-Year Miscellaneous Land Use Permits for Mining
  - Temporary Water Use Authorizations (TWUA)
  - Reclamation Plan Approvals
  - Lease for dock in State of Alaska Tidelands
  - Section 106 Consultation.
- Alaska Department of Environmental Conservation (ADEC)
  - Multi Sector General Permit for Storm Water Discharge
  - Spill Prevention Control and Countermeasure Plan
  - Alaska Pollutant Discharge Elimination System (APDES) for pump test and wastewater discharge
  - Waste Management Permit

- Air Permit for power generation and fugitive emissions in Class I Attainment Area
- Section 401 consultation/certification for the construction and installation activities in waterways
- Camp Authorization and Public Drinking Water Classification

- Alaska Department of Fish and Game (ADFG)
  - Title 16: Habitat Letter of Non-Objection for the issuance of the TWUAs,
  - Aquatic Resources Permit
  - Public Safety Permit

17.3.3 Permit Review Timelines

Permit review timelines are controlled by the requirements of the federal NEPA process and by state requirements for meaningful participation to determine if the proposed Project is in the state's best interest. It is likely that federal and state permits can be prepared concurrently with the NEPA process.

Federal Review

Once permit applications are submitted, the agencies have a set time to determine completeness (typically 30 to 60 days, depending on the complexity of the Project), to request additional information (if required), and to initiate public notice to start the NEPA process. If the applications and supporting documentation submitted by the applicant contain all the required information, then a third-party contractor can be selected, public notice issued, and scoping meetings scheduled during a typical 30 to 45-day public comment period (EIS only).

The lead agency and third-party contractor then prepare a Draft EA or Draft EIS and public notice is given. For 30 to 45 days comments are solicited; in Alaska the public comment period is often extended. After the close of the public comment period, the agency and third-party contractor will respond to comments received during the public notice period and prepare a Final EA or Final EIS. A Final EA is published with a Finding of No Significant Impact (FONSI), while a Final EIS will be given an additional 30-day wait period and will then be followed by publication of a Record of Decision (ROD) either approving the Project or denying it.

Each federal agency, depending on its implementing regulations for an EA or EIS, has the option to issue the applicable permit at the time the ROD is issued or to initiate the public review process on specifics of the individual draft federal permits.

Depending on project complexity, the entire NEPA process can be completed in as little as 18 months. An EA is anticipated to take one to three years, and an EIS is anticipated to take three to seven years. The regulatory requirements for an EIS are more detailed and rigorous than the requirements for an EA.

State Review

The ADNR Large Mine Permitting Team (ADNR LMPT) works to coordinate the permit review process with other state and federal agencies. Public notices, hearings, reviews, and timelines are coordinated as far as practicable with the federal permit review process. The ADNR and other state agencies normally prepare draft state permits that are included concurrently in the federal NEPA process and public notices. Comments and issues recorded during public notice periods are addressed, and responses to comments and final state permits are issued concurrently with the federal decision, or shortly thereafter.

Permit Review Timeline Qualifier

Any and all of the timelines discussed above are subject to delays resulting from factors such as regulatory and statutory changes, inadequate agency staffing, delays in publication of Public Notices (local newspapers and the Federal Register) and competing projects. The timeline could also be extended if issues arise during the agencies' review or public comment periods that are considered to have been inadequately addressed in the information provided by the applicant or from other information sources available to the federal and state agencies. The most common delay in the permitting process is changes to the proposed project by the applicant. Once the permitting process commences, any changes to the Project design will be discouraged.

17.4 Requirements and Plans for Waste and Tailings Disposal, Site Monitoring, and Water Management During Operations and After Mine Closure

Plans and requirements for the waste disposal, site monitoring, and water management during operations and after mine closure will be developed throughout the Project's permitting process. Specifically, plans for the management of waste rock during operations and closure will be developed as part of the Project's geochemical characterization study. Plans for water management during operations and closure, as well as plans for associated site-wide water quality monitoring and biodiversity monitoring, will be developed as the Project moves toward development.

The beneficiation of mineral-bearing ores from this Project is currently proposed to occur offsite utilizing existing process facilities. As such, the post-mining beneficiation (including tailings disposal) has not been included herein as part of the permitting assessment as a potential 'connected action' within the realm of NEPA. In some cases, the connection (be it physical or operational) requires that both (mining and processing) be considered simultaneously in a single NEPA action. This could have implications on the duration of the overall NEPA permitting process.

CEQ regulations provide three definitions of 'connected actions' that require combined NEPA impact assessments:

- an action that "automatically triggers other actions which may require environmental impact statements";
- an action that "cannot or will not proceed unless other actions are taken previously or simultaneously"; and
- actions that "are interdependent parts of a larger action and depend on the larger action for their justification."

The federal agencies reserve the authority to evaluate (and approve) actions that are connected to their jurisdiction, even if the principal actions are on private land and/or significantly removed from each other. This potential issue needs to be more thoroughly reviewed during Project development.

17.5 Post-Performance or Reclamation Bonds

There are two State of Alaska agencies that require financial assurance in conjunction with approval and issuance of large mining permits. The ADNR requires a reclamation plan be submitted prior to mine development and requires financial assurance, typically prior to construction, to assure reclamation of the site. The ADEC requires financial assurance both during and after operations, and to cover short and long-term water treatment, if determined to be necessary, as well as reclamation costs, monitoring, and maintenance needs. The State of Alaska requires that the financial assurance amount also include the property holding costs for a one-year period.

The final financial assurance amount will be calculated through the process of reviewing and approving the reclamation plan during the formal permitting process. In general, the approach is to combine the reclamation costs, post-closure monitoring costs, and the long-term annual water treatment costs (if any) into a financial amount that includes deriving the net present values (NPV) of the long-term costs and combining that with the reclamation cost.

The mine operator may satisfy the state financial assurance requirement by providing any of the following:

1. A surety bond;
2. A letter of credit;
3. A certificate of deposit;
4. A corporate guarantee that meets the financial tests set in regulation by the ADNR commissioner;
5. Payments and deposits into the trust fund established in AS 37.14.800; or
6. Any other form of financial assurance that meets the financial test or other conditions set in regulation by the ADNR or ADEC commissioners and the lead federal agency.

The adequacy of the reclamation plan, and the amount of the financial assurance, are reviewed by the state and federal agencies at a minimum of every five years and may be reviewed whenever there is a significant modification to the mine operations, or other costs that could affect the reclamation plan costs.

17.6 Negotiations or Agreements with Local Individuals or Groups

J T MINING is actively engaging local stakeholders to minimize impacts associated with the proposed project and to maintain the environmental and recreational integrity of the area.

17.7 Mine Closure

Because of the Project's land status, mine reclamation and closure will be governed principally by state regulations (11 Alaska Administrative Code [AAC] 86.150, 11 AAC 97.100-910, and 18 AAC 70) and statutes (Alaska Statutes 27.19). A detailed reclamation plan must be submitted to the ADNR for review and approval during the mine permitting process. A federal nexus will also elicit review of the mine reclamation and closure plans by the NPS, the USACE, and/or USEPA.

17.7.1 Reclamation Plan Approval

The Reclamation Plan Approval provides ADNR authority to review operations to ensure that they comply with Alaskan law: "A mining operation shall be conducted in a manner that prevents unnecessary and undue degradation of land and water resources and the mining operation shall be reclaimed as contemporaneously as practical with the mining operation to leave the site in a stable condition." ADNR's Reclamation Plan Approval includes reclamation stipulations that ensure appropriate re-contouring, soil stability, and revegetation. ADNR also has the authority to require financial assurance sufficient to complete the terms of the Reclamation Plan should the operator not be able to do so.

A Solid Waste Permit from ADEC may be required for the placement of waste rock. This permit will have closure requirements, primarily focused on ensuring long-term water quality meets state and federal standards. If necessary, this permit will require long-term water treatment and monitoring. ADEC has the authority under the Solid Waste Permit to require financial assurance from the operator.

17.8 Adequacy of Plans

Plans to address any issues related to environmental compliance, permitting, and local individuals or groups will be developed as the Project advances.

17.9 Commitments to Ensure Local Procurement and Hiring

The Project would create high-paying jobs during the years of construction (two years) and operation (approximately eight years). Although there is not a formal local procurement and hiring plan in place, the majority of jobs are expected to be held by Alaskans. Moreover, CIRI has leased the mineral rights associated with the proposed mine area to J T MINING so that mineral development can bring revenue to the CIRI members.

17.10 QP's Opinion

In the QP's opinion the current level of work is sufficient to support this initial assessment, and the anticipated baseline data collection and permitting activities are reasonable to advance to the next level of study.

18 CAPITAL AND OPERATING COSTS

18.1 Introduction

This section of the report includes an indicative, conceptual cost estimation which follows the requirements of an Initial Assessment (IA) level of study and is based on Indicated and Inferred mineral resources, which are not of sufficient quality to estimate mineral reserves.

The Johnson Tract Project (the Project) involves two categories of expenditures which are incorporated within the technical cash flow model. They include:

1. Capital Expenditures (discussed in Section 18.2) and
2. Operating Expenditures (discussed in Section 18.3).

By definition, capital refers to the expenditures on major equipment and facilities while operating includes expenditures on the resources required to support the ongoing production.

There are two phases or periods of the Project life within this study where expenditures are incurred:

1. Pre-Production Period and
2. Sustaining Period.

The Pre-Production Period (or the construction phase) within the mine's life cycle follows the exploration phase and occurs before the Sustaining Period. During the Pre-Production period, expenditures are incurred prior to the mine having reached production in reasonable commercial quantities and are deemed to be capital in nature and qualify for an annual depreciation allowance. The Pre-Production Period for the Project begins in Year -5 and ends in Year -1. Expenses prior to this date are considered "sunk costs" and not included in this report or within the financial analysis.

Production in reasonable commercial quantities refers to the level of output, not profit or loss. A mine will normally be considered to have attained production in reasonable commercial quantities on the first day of the first month of the consecutive three-month period where the processing plant first operates at 60% of its rated capacity, provided the mine is the sole source of ore to the processing plant.

The Sustaining Period would also commence when the mine is in the condition necessary for it to be capable of operating in a manner in which it can be managed by the mine, not by a capital project team. The Sustaining Period for the Project as outlined continues for 7 years following the Pre-Production Period.

All costs generated during the Pre-Production Period are capitalized as pre-production capital. During the Sustaining Period, expenditures are either classified as operating or sustaining capital.

18.2 Capital Cost Estimate

For the purposes of this IA, expenses incurred before Year -5 are considered to be sunk costs and are neither provided in this report nor included in the cost model and cash flow. The purpose of the capital cost estimate is to provide scoping-level input to the financial analysis. The accuracy of the estimate is +50%/-50%.

Contingency is the amount of money allocated above the cost estimation in order to reduce risk of overruns of the Project objectives. Contingency in the amount of 25% is applied on all aspects of capital expenditures (except capitalized operating costs and the owner's team) for both the initial capital period and the sustaining period of capital expenditures.

The five-year Pre-Production Period begins in Year -5 and is completed at the end of Year -1. This is the period of initial capital expenditure. During this time, the mine initializes lateral and vertical development, purchases mobile equipment, develops surface infrastructure and incurs some capitalized operating costs to support pre-production mining of mineralized material. This work is also supported by a Project team and other indirects which is estimated to be 3.5% of the initial capital costs. The total estimate for this period is $213.6 inclusive of $36.0M in contingency.

The ongoing, sustaining capital costs for the remaining life of the mine (LoM) during the production phase is estimated at $61.3M including contingency. This includes purchases of mobile equipment, ongoing construction and improvements on surface and underground infrastructure, requisite underground capital development, and mine closure. Contingency of the amount $12.3M is applied to all sustaining costs for the duration of the life of mine. This is summarized in Table 18-1.

Table 18-1 Johnson Tract Project LOM Capital Cost Estimate (US$M)

Capital Expenditures	Total ($M)	Initial Capital ($M) Years -5 to -1	Sustaining Capital ($M) Years 1 to 17
Project Team/Indirects	5.0	5.0	0.0
Development - Lateral	28.4	19.5	8.9
Development - Vertical	1.0	0.6	0.4
Mobile Equipment	21.4	18.9	2.5
Surface Infrastructure	92.7	91.5	1.2
Underground Infrastructure	19.3	13.3	6.0
Closure	30.0	0.0	30.0
Capitalized Operating	28.8	28.8	0.0
Contingency	48.2	36.0	12.3
Capital Total	**274.9**	**213.6**	**61.3**

The total estimated capital cost incurred for both the Pre-Production Period and the Sustaining Period of the LoM is $274.9M.

18.2.1 Basis of Cost Estimates

During the Pre-Production Period there will be a fully staffed owner's team providing engineering, procurement, construction, and management services to the Project. The Project indirects includes the contribution of an owner's team, property tax, engineering design and the expenses related to the generation of a project execution plan. Costs were estimated based on 3.5% of the initial capital costs (less capitalized operating). It is estimated to be $5.0M.

Project infrastructure is inclusive of activities related to surface and underground facility construction and commissioning. It includes various project upgrades on surface, ventilation system installation, establishment of the dewatering system, communication and IT distribution, installation of the ore handling system, maintenance facilities, and miscellaneous underground infrastructure such as refuge stations and storage facilities. Capital estimations for project infrastructure were predominately based on quotes and benchmarks from recent, analogous projects and mines. It is estimated to be $112.0M for the duration of the LoM.

A mobile equipment fleet of 16 underground production and development units are required to execute the Project's life of mine plan, with some of these units being owned and operated by contractors during the completion of capital development tasks. The contractor equipment is not included in the mobile equipment capital estimate but is accounted for in the capital development unit cost. Additional supporting equipment will be required to assist with tasks including installation of mine services, personnel movement, and camp maintenance. The basis of estimation for the mobile equipment are quotes from original equipment manufacturers and benchmarked values from internal and external databases. This mobile equipment capital is estimated to be $21.4M during the life of mine including initial purchases and replacements.

The mine development cost for this study includes the cost of capital lateral and vertical underground development in waste rock, inclusive of the ramp, level accesses, HW drives, ventilation raises, RoM passes, escapeways, and miscellaneous infrastructure excavations required to support mining activities. It does not include drifting in mineralization and stope development. The capital expenditure for development was based on estimated unit costs generated from mines/projects benchmarked as analogs given the drift dimensions and expected ground conditions.

Closure costs are in the amount of $30M and includes removal of surface structures and roadways, underground relocation of impacted soils, and monitoring of site water and vegetation. This estimate is based on experience with analogous projects in the region.

Capitalized operating costs are inclusive of the labor, supplies, taxes, freight, and services related to the operation of the mine to produce plant feed during the pre-production period and are estimated to be $28.8M.

18.3 Operating Cost Estimate

The operating costs are comprised of all costs up to and including processing at an off-site facility. This is inclusive of supply, equipment, and labor costs for all operating activities such as direct mining and stockpiling of RoM on surface, shipment of RoM via roadways and water, processing, and the site G&A expenses. The operating cost estimate for this Initial Assessment is within the range of ±50%. A contingency of 10% has also been included in this estimate.

The total operating cost over the Project's LOM period (minus the costs previously capitalized) is estimated to be US$484.8M. A summary of the Project's operating costs in Table 18-2.

Table 18-2 Johnson Tract Project - LOM Operating Cost Estimate (US$M)

Operating Expenditures	**Total ($M)** Years 1 to 7	**$/tonne** Years 1 to 7
LHOS Stope Production	68.3	26.24
LHOS Operating Development	22.7	8.72
C&F Operating Development	16.3	6.27
Ore/Waste Handling	12.9	4.96
Services/Ancillary	53.9	20.68
Maintenance	11.3	4.32
Supervision and Technical	28.0	10.74
Mine Total	**213.4**	**81.94**
Mill	**102.9**	**39.50**
Transport to Dock	11.6	4.45
Surface Transportation (Barge)	85.0	32.63
Surface Transportation (Truck to Mill)	18.8	7.24
G&A	53.1	20.39
G&A and Transport	**168.5**	**64.70**
Operating Total	**484.8**	**186.14**

18.3.1 Basis and Accuracy Level for Cost Estimates

For the indicative operating cost estimate, the expenditures per unit applied were generated from benchmark data from similar mines. These costs were then separated by a factor into variable and fixed cost components. This allowed the total annual cost to vary depending on the production rate within each year. The exception was the development cost where a unit cost per meter was applied.

Labor costs were generated based on an estimated labor count within each activity using benchmark salaries and wages for similar mines in the region.

The operating costs for milling were benchmarked off processing plants with a similar throughout and flowsheet, with a toll milling surcharge added. The land and sea transport costs were benchmarked based upon expected shipment volumes, while the G&A costs were based on those at similar operations.

19 ECONOMIC ANALYSIS

The owner of the Project has elected to include a preliminary economic estimation for this study. It is understood that under S-K 1300 regulations the owner may, but is not required to, include an economic analysis in the Initial Assessment. It is understood and herein stated clearly that this is not a Mineral Reserve, but a Mineral Resource and as such does not have demonstrated economic viability. Indicated and Inferred Mineral Resources are included in this study and the estimation for costs are preliminary in nature and satisfy conditions set forth in §229.1302(d)(4)(ii) (Item 1302(d)(4)(ii) of Regulation S-K).

19.1 General Description

The general input parameters use a tax calculation based on a Federal Corporate tax rate of 21%, a state corporate tax rate of 9.4%, and an Alaska Mining tax of 7%. A mining exploration tax credit of $20.0M was also applied. Figures are presented in 2025 US dollars (US$) unless otherwise stated. Metal prices and an exchange rate (used solely for conversion of some benchmark capital costs) of C$:US$ = 1.40 were used in the economic evaluation based on guidance from Contango Ore. Details of the input parameters applied to this project are summarized in Table 19-1.

Table 19-1 General Input Parameters

Item			Unit	Value
Contingency				
	Opex		%	10.0%
	Capex		%	25.0%
Metal Price				
	Au Metal		US$/tr.oz	2,200.00
	Ag Metal		US$/tr.oz	26.00
	Cu Metal		US$/lb	4.00
	Zn Metal		US$/lb	1.25
	Pb Metal		US$/lb	0.95
Royalties				
	Royalties (Base)		% on NSR	2.0%
	Royalties (Ag)		% on NSR	2.0%
	Royalties (Au)		% on NSR	4.0%
Processing & Refining				
	Metal Recovery			
		Copper	%	84.5%
		Zinc	%	92.3%
		Lead	%	72.4%
		Gold	%	varies
		Silver	%	varies
	Moisture			
		Moisture	%	8.0%
	Treatment - by Concentrate			
		Lead	US$/dmt	200.00

Item		Unit	Value
	Copper	US$/dmt	80.00
	Zinc	US$/dmt	200.00
	Py - Au/Ag	US$/dmt	0.00
Transport - by Concentrate			
	Base Metals	US$/wmt	100.00
	Pyrite - Au/Ag	US$/dmt	5.00
Penalties			
	Lead	US$/lb	0.00
	Copper	US$/lb	0.00
	Zinc	US$/lb	0.00
	Gold	US$/oz	0.00
	Silver	US$/oz	0.00
Refinery Charges			
	Lead	US$/lb	0.00
	Copper	US$/lb	0.80
	Zinc	US$/lb	0.00
	Gold	US$/oz	varies
	Silver	US$/oz	varies
Payable Metal			
	Lead	%	95.0%
	Copper	%	96.5%
	Zinc	%	85.0%
	Gold	%	94.6%
	Silver	%	50.0%
Taxation			
	Federal Corporate Tax Payable	%	21.0%
	State Corporate Tax Payable	%	9.4%
	Alaska Mining License Tax (AMLT)	%	7.0%
	Mining Exploration Tax Credit	US$	20,000

19.2 Results

The analysis of the Johnson Tract project reported in this study is based exclusively on mineral resources and not mineral reserves. Mineral resources are not mineral reserves and do not have demonstrated economic viability. This financial analysis includes inferred mineral resources, which are too speculative to be classified as mineral reserves and thus the economic assessment may not be realized.

The estimated post-tax NPV of the Johnson Tract Project, using a discount rate of 5%, is $224.5M with 25% contingency on capital costs and 10% on operating costs. The internal rate of return (IRR) is 30.2% post-tax. The corresponding pre-tax NPV and IRR were $359.0M and 37.4%, respectively.

Gold contributes significantly, in the amount of 70% to the overall revenue of this study. The gold value was adjusted for the percentage of the gold payable, refining cost, and process recovery to calculate net revenue from gold. The copper, zinc and lead prices were used along with the costs to refine and transport the concentrate recovered to calculate the net revenue from those contributing metals. A 2% NSR royalty is applied to copper, silver, lead, and zinc while a 4% NSR royalty is applied to gold.

The detailed financial output and financial outcome are presented in Table 19-2.

Table 19-2 Financial Model Summary (Indicated + Inferred Resources)

ITEM	Description	Unit	Value
Finance			
	NPV (Pre-Tax)	US$ (m)	359.0
	IRR (Pre-Tax)	%	37.4%
	NPV (Post-Tax)	US$ (m)	224.5
	IRR (Post-Tax)	%	30.2%
	Non-Discounted Payback Period	yr	1.1
	Discounted Payback Period	yr	1.3
Economics Summary			
	Revenue (NSR less Royalties)	US$ (m)	1,296.7
	Operating Costs	US$ (m)	484.8
	Initial Capital Costs	US$ (m)	213.6
	Sustaining Capital Costs	US$ (m)	61.3
	Payable Metal Value		
	Copper	US$ (m)	120.2
	Zinc	US$ (m)	274.2
	Lead	US$ (m)	36.6
	Gold	US$ (m)	1,014.0
	Silver	US$ (m)	5.1
Initial Capital			
	Project Team	US$ (m)	
	Development - Lateral + Ramp	US$ (m)	19.5
	Development - Vertical	US$ (m)	0.6
	Mobile Equipment	US$ (m)	18.9
	Surface Infrastructure	US$ (m)	91.5
	Underground Infrastructure	US$ (m)	13.3
	Closure	US$ (m)	0.0
	Capitalized Operating	US$ (m)	28.8
	Contingency	US$ (m)	36.0
	Initial Capital Total	**US$ (m)**	**213.6**
Sustaining Capital			
	Project Team	US$ (m)	0.0

ITEM	Description	Unit	Value
	Development - Lateral + Ramp	US$ (m)	8.9
	Development - Vertical	US$ (m)	0.4
	Mobile Equipment	US$ (m)	2.5
	Surface Infrastructure	US$ (m)	1.2
	Underground Infrastructure	US$ (m)	6.0
	Closure	US$ (m)	30.0
	Capitalized Operating	US$ (m)	0.0
	Contingency	US$ (m)	12.3
	Sustaining Capital Total	**US$ (m)**	**61.3**
Operating			
	Mining	US$ (m)	213.4
	Mill	US$ (m)	102.9
	Transport to Dock	US$ (m)	11.6
	Surface Transportation (Barge)	US$ (m)	85.0
	Surface Transportation (Truck to Mill)	US$ (m)	18.8
	G&A	US$ (m)	53.1
	Operating Total	**US$ (m)**	**484.8**
Ore Production			
	Ore Milled	mt	2.7
	Payable Metal		
	Copper	mlb	32.2
	Zinc	mlb	279.3
	Lead	mlb	41.8
	Gold	moz	0.5
	Silver	moz	0.5
Metrics			
	Mine Cost per Tonne Feed	US$/tonne	85.97
	Cash Cost per Tonne Feed	US$/tonne	191.25
	All–In-Sustaining Costs*	US$/GEO	860.00
	Average Annual GEO Produced	Au Eq. Oz. / Yr.	102,258
	Average Annual GEO Payable	Au Eq. Oz. / Yr.	90,692
Mining Method			
	LHOS Mining Cost per Tonne Feed	US$/tonne	85.24
	C&F Mining Cost per Tonne Feed	US$/tonne	90.89

* Initial capital costs in the amount of $213.6 million (pre-production costs) are excluded from AISC

Only 1.3% of the life of mine plan as presented in this study is comprised of Inferred mineral resources. Similar cashflow analysis has been conducted to determine the results of the impacts of the Inferred by removing it from the production profile via factorization. No adjustments have been made to any of the capital expenditures, including development, mine and site infrastructure, and mobile equipment. There has also not been any revision of mine productivity or operating costs due to the lower annual production. The results of the cashflow analysis of the mine plan without Inferred resources resulted in no material changes and is presented in Table 19-3.

Table 19-3 Financial Model Summary (Indicated Resources Only; Excludes Inferred)

	Description	Unit	Value
ITEM			
	NPV (Pre-Tax)	US$ (m)	347.0
	IRR (Pre-Tax)	%	36.6%
	NPV (Post-Tax)	US$ (m)	216.4
	IRR (Post-Tax)	%	29.5%
	Non-Discounted Payback Period	yr	1.1
	Discounted Payback Period	yr	1.3
Economics Summary			
	Revenue (NSR less Royalties)	US$ (m)	1,279.9
	Operating Costs	US$ (m)	480.3
	Initial Capital Costs	US$ (m)	213.4
	Sustaining Capital Costs	US$ (m)	61.3
	Payable Metal Value		
	Copper	US$ (m)	118.6
	Zinc	US$ (m)	270.7
	Lead	US$ (m)	36.2
	Gold	US$ (m)	1,000.8
	Silver	US$ (m)	5.1
Initial Capital			
	Project Team	US$ (m)	5.0
	Development - Lateral + Ramp	US$ (m)	19.5
	Development - Vertical	US$ (m)	0.6
	Mobile Equipment	US$ (m)	18.9
	Surface Infrastructure	US$ (m)	91.5
	Underground Infrastructure	US$ (m)	13.3
	Closure	US$ (m)	0.0
	Capitalized Operating	US$ (m)	28.6
	Contingency	US$ (m)	36.0

	Initial Capital Total	**US$ (m)**	**213.4**
Sustaining Capital			
	Project Team	US$ (m)	0.0
	Development - Lateral + Ramp	US$ (m)	8.9
	Development - Vertical	US$ (m)	0.4
	Mobile Equipment	US$ (m)	2.5
	Surface Infrastructure	US$ (m)	1.2
	Underground Infrastructure	US$ (m)	6.0
	Closure	US$ (m)	30.0
	Capitalized Operating	US$ (m)	0.0
	Contingency	US$ (m)	12.3
	Sustaining Capital Total	**US$ (m)**	**61.3**
Operating			
	Mining	US$ (m)	212.5
	Mill	US$ (m)	101.5
	Transport to Dock	US$ (m)	11.4
	Surface Transportation (Barge)	US$ (m)	83.9
	Surface Transportation (Truck to Mill)	US$ (m)	18.6
	G&A	US$ (m)	52.4
	Operating Total	**US$ (m)**	**480.3**
Ore Production			
	Ore Milled	mt	2.7
	Payable Metal		
	Copper	mlb	31.8
	Zinc	mlb	275.7
	Lead	mlb	41.3
	Gold	moz	0.5
	Silver	moz	0.5
Metrics			
	Mine Cost per Tonne Feed	US$/tonne	86.74
	Cash Cost per Tonne Feed	US$/tonne	192.02
Mining Method			
	LHOS Mining Cost per Tonne Feed	US$/tonne	85.99
	C&F Mining Cost per Tonne Feed	US$/tonne	91.85

19.3 Sensitivity Analysis

The sensitivity of the Johnson Tract Project's NPV to changes in key economic parameters is presented in Figure 19-1, Table 19-3, and Table 19-4, while the impacts to IRR are shown in Figure 19-2 and Table 19-5. The results are due to change in a particular parameter and assumed that the remaining parameters are mutually exclusive and thus remain unchanged.

Sensitivity results indicated that IRR and NPV were most sensitive to changes in metal price or revenue. IRR and NPV were more sensitive to the revenue parameters than to the costs. Change in the costs had almost equal effect on the NPV but the IRR was more sensitive to capital costs.

19.3.1 NPV Sensitivity

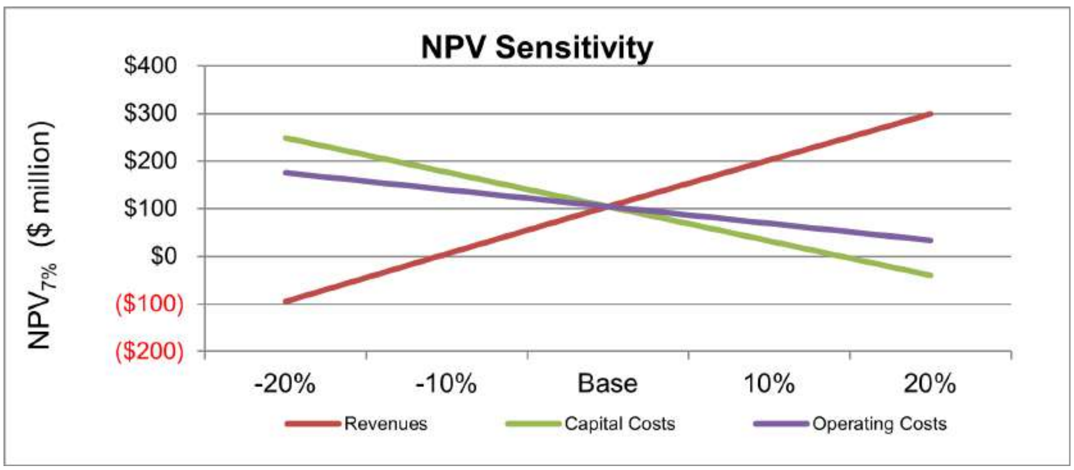


Figure 19-1 Spider Diagram - NPV Sensitivity

Table 19-4 Sensitivity Analysis - NPV (%)

NPV (5%) Sensitivity	-40%	-30%	-20%	-10%	Base	10%	20%	30%	40%
Revenues	-24	39	102	162	224	287	349	412	474
Capital Costs	305	285	265	245	224	204	184	164	144
Operating Costs	323	299	274	249	224	200	175	150	129

The project's post-tax NPV sensitivity to the gold price was also analyzed at a variety of prices, as shown in Table 19-4.

Table 19-5 NPV Sensitivity to Au Price

Gold Price (US$/tr. oz.)	Post-Tax NPV (US$M)
1,650	107.7
1,800	140.9
2,000	181.0
2,200	224.5
2,400	267.9
2,600	311.3
2,800	354.8
3,000	398.2
3,500	506.8
4,000	615.4

19.3.2 IRR Sensitivity

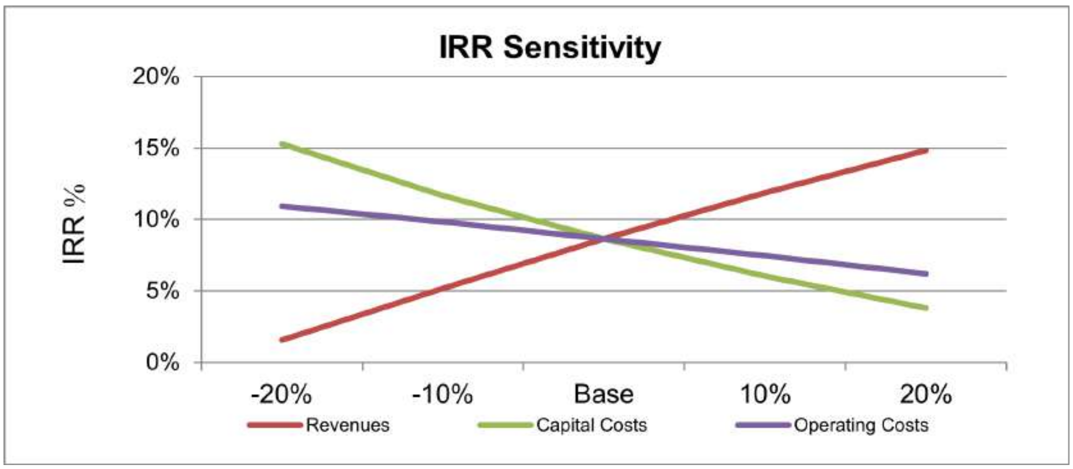


Figure 19-2 Spider Diagram – IRR Sensitivity

Table 19-6 Sensitivity Analysis - IRR

IRR Sensitivity	-40%	-30%	-20%	-10%	Base	10%	20%	30%	40%
Revenues		11%	19%	25%	30%	35%	39%	42%	46%
Capital Costs	48%	42%	38%	34%	30%	27%	24%	21%	19%
Operating Costs	37%	35%	34%	32%	30%	28%	26%	24%	22%

19.4 Payback

The Payback Period is defined as the time following the commencement of the commercial production that is required to recover the initial expenditures incurred in developing the mine, inclusive of all capital costs in the Pre-Production period. The Payback Period is calculated using net cash flow and the payback point occurs when the Project's net cumulative cash flow is zero. For the Johnson Tract Project, the undiscounted payback period is approximately 1.1 years from the start of commercial production, while the discounted payback period is 1.3 years (Figure 19-3).

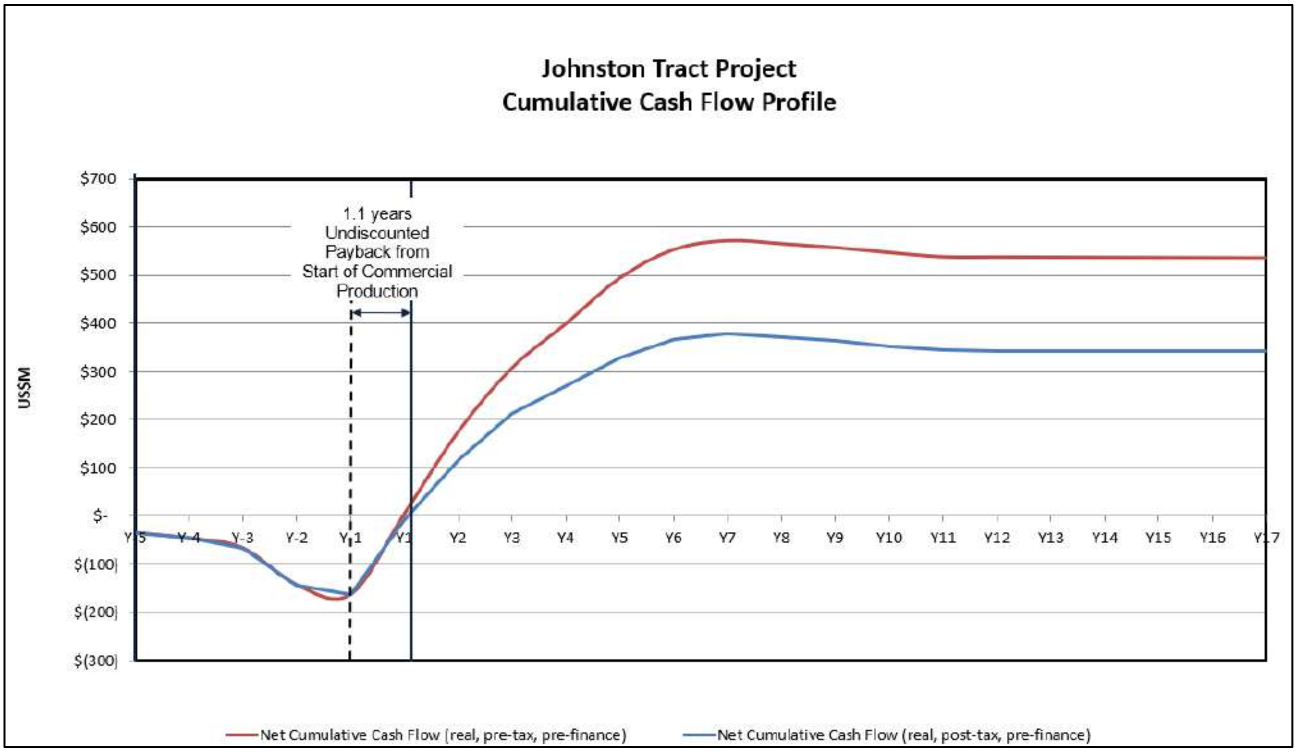


Figure 19-3 Johnson Tract Project Payback Period

20 ADJACENT PROPERTIES

There are no adjacent properties relevant to the Johnson Tract Project.

21 OTHER RELEVANT DATA

The authors are not aware of any other relevant data or information.

22 INTERPRETATION AND CONCLUSIONS

22.1 Mining Methods

The Johnson Tract Project is amenable to underground mining given the nature and location of the Deposit, and the mine plan generated during this study, which is based on Indicated and Inferred Mineral Resources. The mining methods proposed are common in North America and should be easily implemented, with the ability to draw on an experienced mining workforce in the region.

Following development of the underground access and completion of additional technical studies, the development of the mine will commence in Year -2 with mineralization material first extracted in Year -1. The mine quickly reaches peak production using the longhole open stoping method and later utilized cut and fill mining (both over- and underhand approaches) to supplement production as the availability of stopes begins to decrease later in the mine life. Year 7 marks the final year of production, after which site closure and remediation activities begin.

Further studies are required to better understand the geotechnical and hydrogeologic conditions associated with the Deposit which may dictate changes to the mine design and production rate, or result in additional costs being incurred.

It is the QP’s opinion that the life of mine design and schedule is reasonable for an Initial Assessment-level of study. The additional data collection and technical studies proposed, along with the upgrading of Mineral Resource confidence levels, will benefit further stages of study.

22.2 Infrastructure

The Project site currently possesses little infrastructure, consisting of an exploration camp and a gravel airstrip. Much of the surface infrastructure will be constructed during the Pre-Production Period, with underground infrastructure requirements being driven by the development of the mine.

The port facility to be constructed will provide the primary means for moving people, supplies, and equipment to/from the site as well as moving mineralized material from the site to be processed. A series of roads and bridges connecting the port facility, camp and portal area will be required. The airstrip will continue to be used for emergency transport of personnel and supplies.

As the processing of mineralized material will be occurring off-site, the surface infrastructure footprint will remain rather compact, with the primary items to consist of camp and associated buildings, offices, dry and shop/warehouse facilities at the portal area, storage areas, stockpiles areas, power supply, water management facilities, and barge landing facility. Following the completion of mining activities the majority of the surface infrastructure will be removed, and the site restored to a natural state.

22.3 Environmental, Permitting, and Social Impacts

The Project is currently permitted for exploration activities and associated infrastructure at the Johnson Camp. SUPs have been in place annually to support baseline data collection activities within waterways and on NPS-administered public lands associated with easement areas.

Construction of the proposed mine facilities located on land owned by CIRI, and the proposed transportation corridor and port easements located on land administered by the NPS, would require terrain modification and discharge of clean fills. Due to the number of wetlands within these areas, avoiding all discharges of fill into WOTUS would not be practicable. Therefore, the USACE would likely have authority over these actions and would be required to determine the Least Environmentally Damaging Practicable Alternatives to authorize under Section 404 of the CWA.

As the Project moves toward the development of Feasibility-level engineering studies, additional and comprehensive environmental baseline studies will need to be prepared and used to inform consultation with stakeholders and regulators for review under NEPA. A thoughtfully designed mine plan that minimizes impacts and presents effective mitigation measures (if necessary) is paramount to a successful NEPA process and the successful establishment of a future mining operation.

In addition to the NEPA process, completion of major state and federal permit applications and consultations listed in Section 17.3.2 will likely be required prior to authorization of the proposed mine, road, and port facility.

In the QP's opinion the current level of work is sufficient to support this initial assessment, and the anticipated baseline data collection and permitting activities are reasonable to advance to the next level of study.

22.4 Capital and Operating Costs

The capital and operating costs for the Project have been estimated with an expected accuracy of ±50% of the final cost, and the contingency aligns with the allowances specified under S-K 1300 for an Initial Assessment (IA). The Pre-production capital cost is estimated at $213.6 million, while the Sustaining capital costs over the life of mine are projected to total $61.3 million, bringing the total capital cost, inclusive of Pre-production and Sustaining expenditures, to $274.9 million. A contingency of 25% has been added to all items.

Operating costs over the LOM are estimated at $484.8 million, corresponding to a unit cost of $186.14 per tonne of mineralized material processed. A contingency of 10% has been assumed in the operating costs.

The completion of additional data collection and technical studies will inform changes to the mine design and schedule during the next stage of study, which will in turn allow for further refinement of the expected capital and operating costs.

22.5 Economic Analysis

The Initial Assessment (IA) is preliminary in nature, and as such there are
Indicated and Inferred Mineral Resources included in the life of mine plan, schedule. These resources are considered too geologically speculative to apply the economic considerations necessary to categorize them as Mineral Reserves, and there is no guarantee that the outcomes outlined in the IA will be achieved.

Based on the assumptions detailed in this report, the Johnson Tract Project demonstrates positive after-tax financial results. The post-tax net present value (NPV) at a 5% discount rate is estimated at $224.5 million, with an internal rate of return (IRR) of 30.2%.

The Payback Period is defined as the time following the commencement of the commercial production that is required to recover the initial expenditures incurred in developing the mine, inclusive of all capital costs in the Pre-Production period. The project possesses an undiscounted Payback Period of 1.1 years, and a discounted Payback Period of 1.3 years.

The Johnson Tract Project is most sensitive to changes in the gold selling price as it drives 70% of the contained metal value, followed by variations in capital costs and operating costs.

23 RECOMMENDATIONS

23.1 Work Programs

23.1.1 Recommended Work Programs

In order to advance the Johnson Tract Project (the Project) to the Prefeasibility Study (PFS) phase, the following work must be completed:

- Advancement of 3D lithology, alteration, and structural geology models.
- Detailed geotechnical drill core logging and mapping, and laboratory testing program to support Prefeasibility Study-level engineering.
- Geohazard risk assessment including collection of baseline slope movement data.
- Advance design of surface and underground infrastructure required to support the proposed exploration program to "For Construction" level. This includes access to the portal area, movement of supplies, equipment and personnel, excavation and ground support, temporary and permanent portal facilities, waste rock management, process water supply, dewatering and water management/ treatment.

Additional studies, while not required for advancement of the Project, could assist in improving the Project and include:

- Analyze the Johnson Tract material to determine its amenability to sorting/pre-concentration.
- Investigate backfill binder ratios to optimize the binder cost vs. stope curing time.

23.1.2 Recommended Work Program Costs

Table 23-1 summarizes the costs for recommended work programs.

Table 23-1 Summary of Costs for Recommended Work

Discipline	Program Description	Cost (US$)
Property Description and Ownership		
Geology and Mineralization	Advancement of 3D lithology, alteration, and structural geology models	$25-50k
Status of Exploration, Development and Operations		
Mineral Resource Estimates	Completion of Underground definition drilling program to upgrade Resource estimates.	$8M
Mineral Reserve Estimates	Prefeasibility Study	$1M
Mining Methods	Detailed geotechnical drill core logging and mapping, and laboratory testing program to support prefeasibility study-level engineering Binder content trade-off study/analysis	$400k-500k excluding drilling costs $125k
Processing and Recovery Methods	Completion of a sensor sorting characterization for amenability to ore pre-concentration	$80k

Discipline	Program Description	Cost (US$)
Infrastructure	Geohazard risk assessment including collection of baseline slope movement data	$25-50k
Infrastructure	Bring design of surface and underground infrastructure required to support the proposed exploration program to "For Construction" level. Including access to portal area, movement of supplies, equipment and personnel, excavation and ground support, temporary and permanent portal facilities, waste rock management, process water supply, dewatering and water management/ treatment.	$0.5M - $1M excluding Geotechnical & Hydrogeology programs Additional $0.2M to $0.35M for these
Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups	Perform environmental baseline studies (including geochemistry and hydrogeology) to support permitting, prepare major permits and requisite documentation including compliance with NEPA and stakeholder engagement.	$4M - $6M
Capital and Operating Costs	n/a	$0
Economic Analysis	n/a	$0
Total US$		**$14.36M - $17.16M**

23.2 Other Recommendations

23.2.1 Resource Geology

The following recommendations are suggested as it concerns the Resource Geology:

- Additional definition drilling at 15-20m spacing to define Measured and Indicated resources;
- Additional estimation of specific gravity modelling; and
- Additional definition for geometallurgical domains

23.2.2 Geotechnical

The following recommendations are suggested as it concerns the Geotechnical aspects:

- It is recommended to reconsider the portal location to ensure it is situated within the Dacite QFP and away from the known Altered Dacite. Additionally, further data collection may be necessary around the portal access to better understand the spatial extent of the Altered Dacite;
- The Dacite Fault poses a significant risk to the stability of underground excavations. Refinement of the delineation of this fault structure and understanding of its characteristics is strongly recommended;
- The currently proposed alignment of the access portal and decline is potentially intersecting unfavorable ground conditions in the Altered Dacite unit. Further characterization of the alteration is strongly recommended; and
- Evidence of brittle fault structures in the Tuff FW unit have been observed in the drill data and core photographs. The influence of these faults to the stability of the proposed underground excavations is not well understood. Further work to better identify and characterize these faults and their impact on excavation stability.

23.2.3 Hydrogeology

The following recommendations are suggested as it concerns the Hydrogeology aspects of the underground mine design:

- Additional hydraulic testing should be carried out in the next phase of drilling to gather additional hydraulic conductivity data, in particular to assess potential impacts of shallow, higher K zones that could transmit snow melt and rainfall infiltration rapidly to the underground, as well as structures (faults) to reduce uncertainty regarding inflow rates;
- Groundwater quality sampling should be carried out in the mineralized zones to determine background water chemistry as part of the overall site water management assessment and design process; and
- A decision should be made in the PFS program if groundwater inflows could have a material impact on site water management (especially when assessing winter discharge conditions/capacity) to see if numerical modelling should be carried out or deferred until FS assessment.

23.2.4 Mining

The following recommendations are suggested as it concerns the Mining aspects:

- Examine additional extraction methods for the material located in and in the vicinity of the Dacite Fault to assess whether the dilution or operating costs could be improved; and
- Re-evaluate the location of underground infrastructure (footwall vs. hanging wall) once additional geotechnical drilling and analysis has been completed.

23.2.5 Metallurgy & Processing

The following recommendations are suggested as it concerns the Metallurgy and Processing aspects:

- Further grindability testing on domain and variability composites from the Johnson Tract Deposit;
- Evaluate the response of domain and variability composites to the process flowsheet developed in the BCR program;
- Conduct further test work to increase recovery to lead concentrate and reduce zinc misplacement to the lead concentrate;
- Confirm cyanidation recovery on the combined cleaner tailings (Zn 1st cleaner tailings, Au 1st cleaner tailings);
- Gold focused mineralogy including a trace mineral search (TMS) and D-SIMS to evaluate the association of gold with sulfide minerals; and
- Given the expected high-cost of shipping material for processing, the Johnson Tract project may be a good candidate for ore-sorting of mine production and testing is recommended for the Project.

23.2.6 Infrastructure

The following recommendations are suggested as it concerns the infrastructure aspects:

- Perform an avalanche risk analysis on the location of the planned portal collar and the ventilation collar area and evaluate required mitigation measures; and
- Advance design of surface and underground infrastructure required to support the proposed exploration program including access to portal area, movement of supplies, equipment and personnel, excavation and ground support, temporary and permanent portal facilities, waste rock management, process water supply, dewatering and water management/ treatment.

23.2.7 Environmental, Social, and Governance

The following recommendations are suggested as it concerns the Environmental, Social, and Governance aspects:

- Continue engaging with relevant local, state, and federal agencies to identify specific baseline data needs, develop baseline study work plans, and determine permitting requirements and a permitting pathway for the Project;
- Initiate additional baseline studies as soon as possible;
- Continue formalized stakeholder engagement activities; and
- Document all alternatives considered for Project design.

23.2.8 Capital and Operating Costs

The following recommendations are suggested as it concerns the Capital and Operating Cost aspects:

- Evaluate the potential for utilizing sorting / pre-concentration technology to limit the amount of material transported off-site for milling, which may also reduce the amount of material required to supplement the waste rock in backfilling activities.

24 REFERENCES

Betka, P.M., Gillis, .J., and Benowitz, J.A., 2017, Cenozoic sinistral transpression and polyphase slip within the Bruin Bay fault system, Iniskin-Tuxedni region, Cook Inlet, Alaska. Geosphere, v. 13, no. 6, p. 1806- 1833.

Brabets T.P. and Riehle J.R., 2003. Geochemistry of the Johnson River, Lake Clarke National Park and Preserve, Alaska. Water-Resource Investigations Report 03-4252. U.S. Geological Survey. U.S. Department of the Interior.

Clark L, Pakalnis R (1997) An empirical design approach for estimating unplanned dilution from open stope hanging walls and footwalls. In Proceedings of the 99th annual general meeting. Vancouver: Canadian Institute of Mining, Metallurgy and Petroleum Mathews et al. ,1981

Clift, P.D., Draut, A.E., Kelemen, P.B., et al., 2005. Stratigraphic and geochemical evolution of an oceanic arc upper crustal section: The Jurassic Talkeetna Volcanic Formation, south-central Alaska. Geological Society of America Bulletin 117:902.

Contango Ore, 10 July 2024 Press Release: "Contango Completes Acquisition of HighGold" www.contangoore.com/press-release/contango-completes-acquisition-of-highgold

Detterman, R.L., and Harstock, J.K., 1966. Geology of the Iniskin-Tuxedni Region, Alaska. Geological Survey Professional Paper 512. U.S. Department of the Interior. United States Government Printing Office, Washington.

Detterman, R.L., Miller, J.W., Case, J.E., Wilson, F.H., and Yount, M.E., 1996, Stratigraphic framework of the Alaska Peninsula: U.S. Geological Survey Bulletin, 1969–A, 74 p.

Grimstad, E., Barton, N. 1993. Updating of the Q-system for NMT. In: International Symposium on Sprayed Concrete. Fagernes, Proceedings, pp. 46–66.

Hacker, B.R., Mehl, L., Kelemen, P.B., et al., 2008. Reconstruction of the Talkeetna intraoceanic arc of Alaska through thermobarometry. J Geophys Res 113:B03204.

Hughes, R.A., 1988. Preliminary Feasibility Study, Johnson River Project. BTW Mining & Exploration Corp. 050.053.192-Johnson Tract, Preliminary Feasibility Study, Johnson River Project, Cook Inlet Region Inc. Database.

McClelland, B., and Dimo, G., 1982. 1982 Annual Report, Geology of the Johnson Region, CIRI In-Region Project. Anaconda Minerals. 050.053.195-Geology of The Johnson Region, Cook Inlet Region Inc. Database.

Miller, T. P., McGimsey, R. G., Richter, D. H., Riehle, J. R., Nye, C. J., Yount, M. E., and Dumoulin, J. A., 1998. Catalog of the Historically Active Volcanoes of Alaska: U.S. Geological Survey Open-File Report 98-0582, 104 p.

Millholland, M.A., and McClelland, B., 1984. Anaconda Internal Memorandum, October 1st, 1984 Monthly Report, Johnson Project, July 1984. 050.053.188-1984 Johnson Project, Reports & Memos, Cook Inlet Region Inc. Database.

Monroe, R.L., 2021. Title Report for CIRI Lands in T1N R21W and T1S R21W, SM for J T Mining, Inc. by Stoel Rives LLP. 9 p.

N. Barton, “Engineering Classification of Rock Masses of the Design of Tunnel Support”. Rock Mechanics and Rock Engineering, 1974

National Parks Service, 2020: Right-of-Way Certificate of Access for North Tract of Johnson Tract, Environmental Assessment. https://parkplanning.nps.gov/document.cfm?parkID=17&projectID=97397&documentID=106699

National Parks Service, 2024: Lake Clark National Park and Preserve Johnson Tract Transportation and Port Easements Resource Analysis. www.nps.gov/lacl/learn/news/upload/Resource-Analysis-Johnson-Tract-2.pdf

Nokleberg, W. J., Plafker, G., and Wilson, F. H., 1994. Geology of south-central Alaska, in Plafker, G., and Berg, H. C., eds., The Geology of Alaska: Boulder, Colorado, Geological Society of America, The Geology of North America, v. G-1, p. 311–366.

Piteau, 2023a: Johnson Tract Project: Hydrogeological Characterization and Adit Inflow Assessment. Dec 2023

Proffett, J., 1990. Summary of 1990 Exploration Work at Johnson Prospect, Alaska. 050.053.189-Johnson River Progress Report, Cook Inlet Region Inc. Database.

Proffett, J., 1993. Geologic and Exploration Summary of the Johnson Au-Base Metal Deposit, Alaska. 050.053.189-Johnson Tract, Geologic and Exploration Summary, Cook Inlet Region Inc. Database.

Proffett, J., 2019. Report on Geological Work in the Johnson Deposit Area, Alaska, December 2019. HighGold Company Files

Proffett, J., 2021. Report on 2020 Geological Work, Johnson-Kona Region, Alaska, January 2021 HighGold Company Files

Proffett, J., 2022. Report for 2021 Field Work, Johnson Region, Alaska: Mapping in the Kona Creek Area and Review of Drill Core from the Northeast Offset Area HighGold Company Files

R. Brown, J. Gray, and L. Jones, “Updated Mineral Resource Estimate and NI 43-101 Technical Report for the Johnson Tract Project, Alaska”. For HighGold Mining Inc. Report date August 2022. Effective Date July 2022. Johnson Tract, Alaska, Kenai Quadrangle.

Resource Associates of Alaska (RAA), 1976. Reports and Communications. 050.053.198-Johnson Tract, Resource Associates of Alaska, Inc. Reports, Cook Inlet Region Inc. Database.

Rioux, M., Hacker, B., Mattinson, J., et al., 2007. Magmatic development of an intra-oceanic arc: High-precision U-Pb zircon and whole-rock isotopic analyses from the accreted Talkeetna arc, south-central Alaska. Geological Society of America Bulletin 119:1168–1184.

Rockingham, C., 1993. Johnson River – Alaska's Jurassic Park. Abstract from Alaska Miners Association 1993 Annual Convention. 050.053.189-Johnson Tract, Geologic and Exploration Summary, Cook Inlet Region Inc. Database.

Smee, B.W., 2022. External Quality Control Data Review, Johnson Tract (JT) 2019-2021 Drilling, Alaska. Prepared for HighGold Mining Inc. by Smee and Associates Consulting Ltd., p 29.

Stantec, 2023: Environmental Evaluation Document (EED) Johnson Tract Mineral Exploration Project. Prepared for J T Mining, Inc.

Steefel, C.J., 1984. 1983 Johnson Prospect Report. Volumes I and IV. Anaconda Minerals Company. 050.053.196-1983 Johnson Prospect Report Volume I of IV, Cook Inlet Region Inc. Database.

Steefel, C.J., 1985. Anaconda Internal Memorandum, February 6th, 1985. 1985 Johnson Prospect Geologic Resource Calculations. 050.053.188-1984 Johnson Project, Reports & Memos, Cook Inlet Region Inc. Database.

Steefel, C.J., 1987. The Johnson River Prospect, Alaska: Gold-Rich Sea-Floor Mineralization from the Jurassic. Economic Geology, Vol. 82, p. 894-914.

Steefel, C.J., Graubard, C.M., and Harris, T.D., 1985. 1984 Johnson Prospect Report. Volumes I and II. Anaconda Minerals Company. 050.053.197-1984 Johnson Prospect Report, Volume I of II, Cook Inlet Region Inc. Database.

Stewart SBV, Forsyth WW (1995) The Mathew's method for open stope design. CIM Bulletin, 88(992):45-53

U.S. Army Corps of Engineers, 2024: Environmental assessment for the 404 permit on the South Tract. www.dnr.alaska.gov/mlw/mining/large-mines/johnson-tract/pdf/POA-2023-00115_20240910_Permit.pdf

Wang, L., Qin, K., Song, G., and Li, G., 2019. A review of intermediate sulfidation deposits and subclassification. Ore Geology Reviews, Vol. 107, p. 434-456.

Wartes, M.A., Herriott, T.M., Helmold, K.P., and Gillis, R.J., 2013. Preliminary stratigraphic interpretation of the Naknek Formation—Evidence for Late Jurassic activity on the Bruin Bay fault, Iniskin Peninsula, lower Cook Inlet, in Gillis, R.J., ed., Overview of 2012 Field Studies—Upper Alaska Peninsula and West Side of Lower Cook Inlet, Alaska: Alaska Division of Geological & Geophysical Surveys Preliminary Interpretive Report 2013-1H, p. 39–46.

Weatherbase.com for Lake Clark National Park, Alaska, Feb 19, 2025: Source for climate data.

Westmin Resources Ltd., 1993. Johnson River Access and Port Evaluation. 050.053.190-Johnson River Access Road & Port Site Evaluation Project, Cook Inlet Region Inc. Database.

Westmin Resources Ltd., 1994. Johnson River Project, Property Prefeasibility, Technical Report. Vol. 1–4.

Wetherell, D.G., and Ellis, W.T., 1982. 1982 Johnson Prospect Reports & Memos. 050.053.188-1982 Johnson Prospect, Reports & Memos, Cook Inlet Region Inc. Database.

25 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

Contango Ore has contracted some studies directly with specialist firms, experts in their discipline and provided the information to the QPs for this Technical Report Summary. The following information was provided to the Qualified Persons by Contango Ore to use in the preparation of this report.

- Johnson Tract Project Scoping Study. Prepared for J T Mining by SRK Consulting (Canada) Inc. 2024
- Updated Mineral Resource Estimate and NI 43-101 Technical Report for the Johnson Tract Project, Alaska. Prepared for J T Mining by C. Brown and J. Gray, 2022

These contributions have been reviewed by the authors, and they believe them to be accurate portrayals of the Project at the time of writing this Technical Summary.