



## ASSESSMENT REPORT TITLE PAGE AND SUMMARY

**TITLE OF REPORT: Geology of the Silver Fox property, Purcell Mountains, southeastern British Columbia**

**TOTAL COST: \$28198.37**

AUTHOR(S): Trygve Hoy, D. Anderson, M. Seabrook  
SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): not applicable  
STATEMENT OF WORK EVENT NUMBER(S)/DATE(S): 5095288; Oct 22. 2011

YEAR OF WORK: 2011

PROPERTY NAME: Silver Fox

CLAIM NAME(S) (on which work was done):

515408,519022,519048,519679,704424,835422,835423,835424,835425,835426,835427,835948,835949,835951,835952,835953,835954,835955,835956,835958,835960,835963,836264,836265,836267,836268,836269,836270,836272,836275,836276,836278,836279,836280,836282,837422,837423,837424,837425,837427

COMMODITIES SOUGHT: copper gold

MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN 082GSW058

MINING DIVISION: Fort Steele

NTS / BCGS: 082G/4 (1:50,000)

LATITUDE: 49° 09' 00"

LONGITUDE: 115° 39' 00" (at centre of work)

UTM Zone: 11                      EASTING: 495000                      NORTHING: 5446000

OWNER(S): S.J. Kennedy; D.E. Lavoie

MAILING ADDRESS:

2290 DeWolfe Ave, Kimberley, B.C., V1A 1P5

OPERATOR(S): Kootenay Gold Inc.

MAILING ADDRESS:

550-99- W. Hastings Street, Vancouver, B.C., V6E 2E9

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude.

Purcell Supergroup, Creston Formation, middle Proterozoic, stratabound copper-silver, Spar Lake model, oxidized base metal veins, Sara vein, Silver Pipe vein

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

Assessment reports:31658, 30660, 29810, 29609, 28623, 28069, 26018, 25799, 20753, 10907

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping	Approx. 15,000ha	Recce. On all claims	\$20698.37
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt	17		
Rock	1		
Other			
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail			
Trench (number/metres)			
Underground development (metres)			
	admin Report data compilation		\$5000.00 \$2400.00
		<b>TOTAL COST</b>	<b>\$28198.37</b>

# Geology of the Silver Fox property, Purcell Mountains, southeastern British Columbia

NTS map sheet 082G/4  
1:20,000 trim map sheets 082G002, 003, 012, 022  
centered at 49°09'N and 115°39'W

Fort Steele Mining Division

by

Trygve Höy, P.Eng.  
2450 Dixon Road, Sooke, B.C., V9Z 0X6

Doug Anderson, P.Eng.  
100-2100 13<sup>th</sup> Street S., Cranbrook, B.C., V1C 7J5

and

Michael Seabrook, BSc.  
308-1335 12 Ave SW, Calgary, AB, T3C 3P7

Claim owners:

Sean J. Kennedy.  
2290 DeWolfe Ave., Kimberley, B.C., V1A 1P5

and

Darlene E. Lavoie  
2290 DeWolfe Ave., Kimberley, B.C., V1A 1P5

Claim operator:

Kootenay Gold Inc.  
550-999 W. Hastings Street  
Vancouver, B.C., V6E 2E9

BC Geological Survey  
Assessment Report  
32645

January 15, 2012

Geology of the Silver Fox property, Purcell Mountains,  
southeastern British Columbia

**Table of Contents**

Introduction.....	5
Claims.....	5
Location and access .....	5
Exploration history.....	8
Regional geology.....	10
Stratigraphy.....	10
Structure and tectonics.....	12
Local geology.....	13
Structure.....	13
Lithologic units.....	17
Mineralization and alteration.....	18
Introduction.....	18
Alteration.....	18
Mineralization.....	20
Summary and recommendations.....	23
Acknowledgements.....	23
References.....	24

**Figures**

1. Property location map.....	6
2. Silver Fox property claim map.....	7
3. Regional geology map .....	11
4. Stratigraphic succession: Purcell Supergroup.....	12
5. Geology of the Silver Fox property (5a – 1:50,000 scale).....	14
6. Geology map of the northern part of the property (6a – 1:5,000 scale).....	15
7. Mineralization and alteration patterns, Silver Fox north.....	21

**Appendices**

1. List of claims.....	26
2. Statement of costs.....	27
3. Statement of qualifications.....	28
4. Description and location of analyzed samples.....	31
5. Analyses of hand samples.....	32

**Tables**

1. List of assessment reports, Silver Fox property..... 8

**Photos**

Frontispiece: view to the south, along the Yahk valley and fault..... 4

1. Flute casts at base of siltstone layer, Creston Formation..... 17

2. Intense hematite alteration..... 19

3. Fracture controlled hematite and manganese oxide..... 20

4. Mineralized quartzite, Jake Creek stratabound copper zone..... 22



Frontispiece

View to the south, along the Yahk valley and fault.  
In foreground is part of the intense alteration associated with the Sara vein system.  
The Sara vein is located in the lower left of photo.

## **Introduction**

The Silver Fox property comprises 20,471 hectares of mineral tenures in southeastern British Columbia, owned by S. Kennedy and E. Lavoie and optioned to Kootenay Gold Inc. These tenures are located in the southern Purcell Mountains, extending from just south of Moyie Lake approximately 30 km to the United States border. They mainly overlie middle Proterozoic metasediments of the Creston Formation, rocks that are correlative with the host rocks of the Spar Lake, Montanore and Rock Creek silver-copper deposits in Montana.

Most claims were acquired in 2010 after regional prospecting programs located stratabound copper mineralization similar to that in Montana as well as extensive zones of hydrothermal alteration. These claims were tied in to previously acquired claims in the north that have had considerable past exploration with discovery of several east-west trending oxidized lead-zinc silver veins associated with zones of intense fault-control alteration.

Mineralization in the northern part of the property is believed to be within a northwest-trending structural-tectonic zone that includes the St. Eugene and Society Girl deposits immediately northwest of the Silver Fox property, the Silver Pipe and Sara veins on the property and the Jake Creek stratabound copper mineralization, immediately southeast of the Sara vein. Controls of mineralization farther south are less well understood but appear to be related to favourable host lithologies in the Creston Formation and north to northwest-trending faults.

This report is based on reconnaissance mapping in the southern part of the claim group and more detailed mapping and compilation in the north. Additional work by Kootenay Gold Inc. during the 2011 field season included prospecting (Kennedy, 2012) and a regional silt geochemical survey (Jackaman, 2012). These studies confirmed preliminary evaluation of the Silver Fox property as a major new belt with potential for significant stratabound, Spar-Lake type silver-copper mineralization.

## **Claims**

The Silver Fox property comprises 42 mineral tenures as show on Figure 2 and listed in Appendix 1. The claims are registered to Sean J. Kennedy and Darlene E. Lavoie and are in good standing until August 12, 2012. Kootenay Gold Inc. is the operator. These claims cover an area of 20,460.9 hectares (204.6 sq. km) centered at 598000E and 5445000N in the southern Purcell Mountains (Figure 1).

## **Location and access**

The Silver Fox property is located in the southern Purcell Mountains, extending approximately 30 km northward from the United States border to just north of Teepee Creek. The southern Purcell Mountains are relatively subdued, typically covered by extensive evergreen forests: hemlock, fir and cedar. Elevations range from approximately 1100 meters in valley bottoms in the southern part of the area to 2400 meters at the summit of Yahk Mountain, the highest peak in the area. Yahk River and Gilnockie Creeks flow southward through the central and southern part of the area and Teepee Creek flows northeastward in the northern part of the area. These and numerous other creeks eventually drain into the Kootenay River drainage system.

A large part (>50%) of the area has been logged. Numerous logging access roads and spur roads provide ready access to most of the Silver Fox property. These logging roads can be accessed from Highway 3 near the south end of Moyie Lake and from Highway 93 near Jaffray.

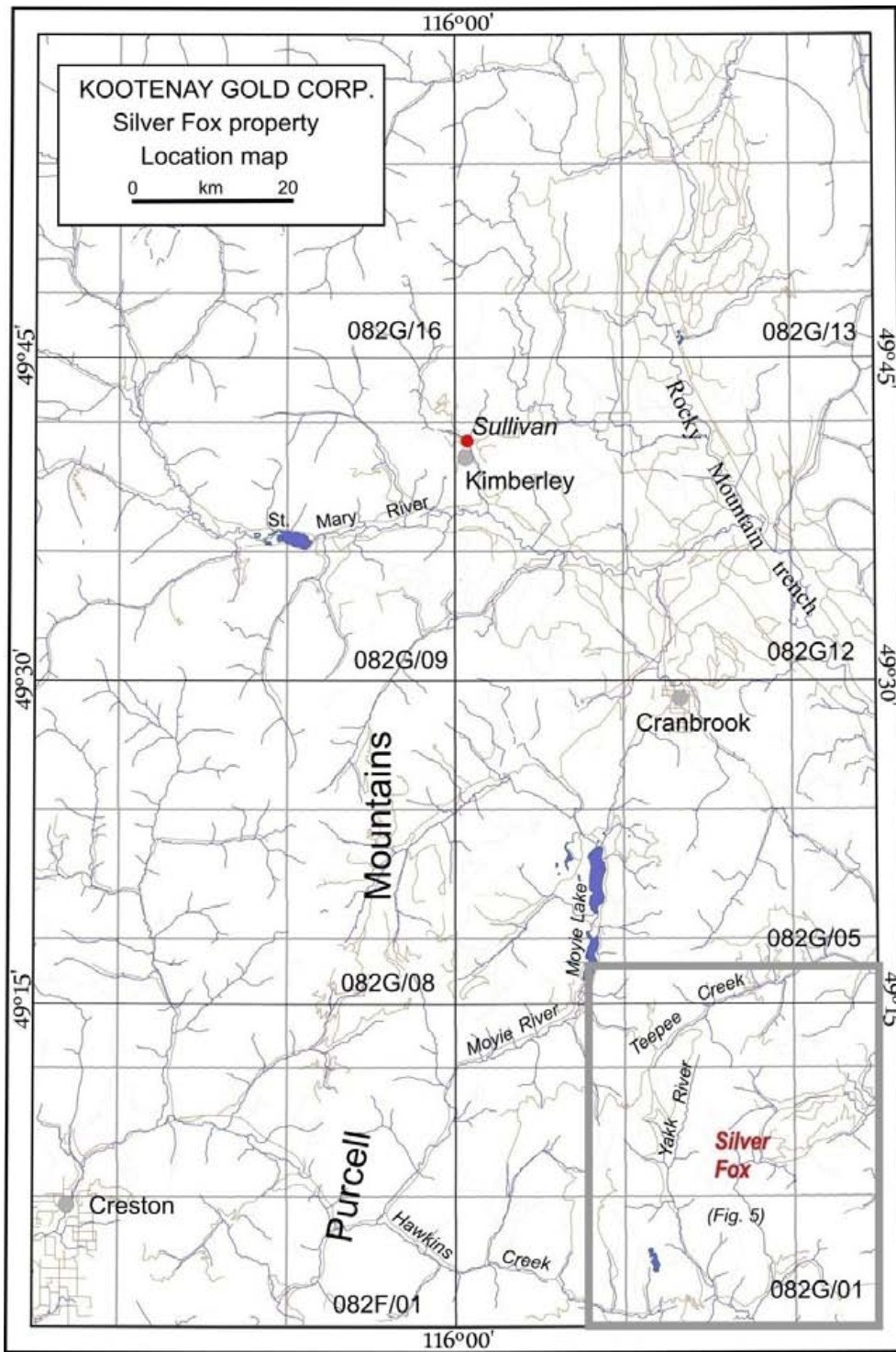


Figure 1: Property location map, southeastern British Columbia



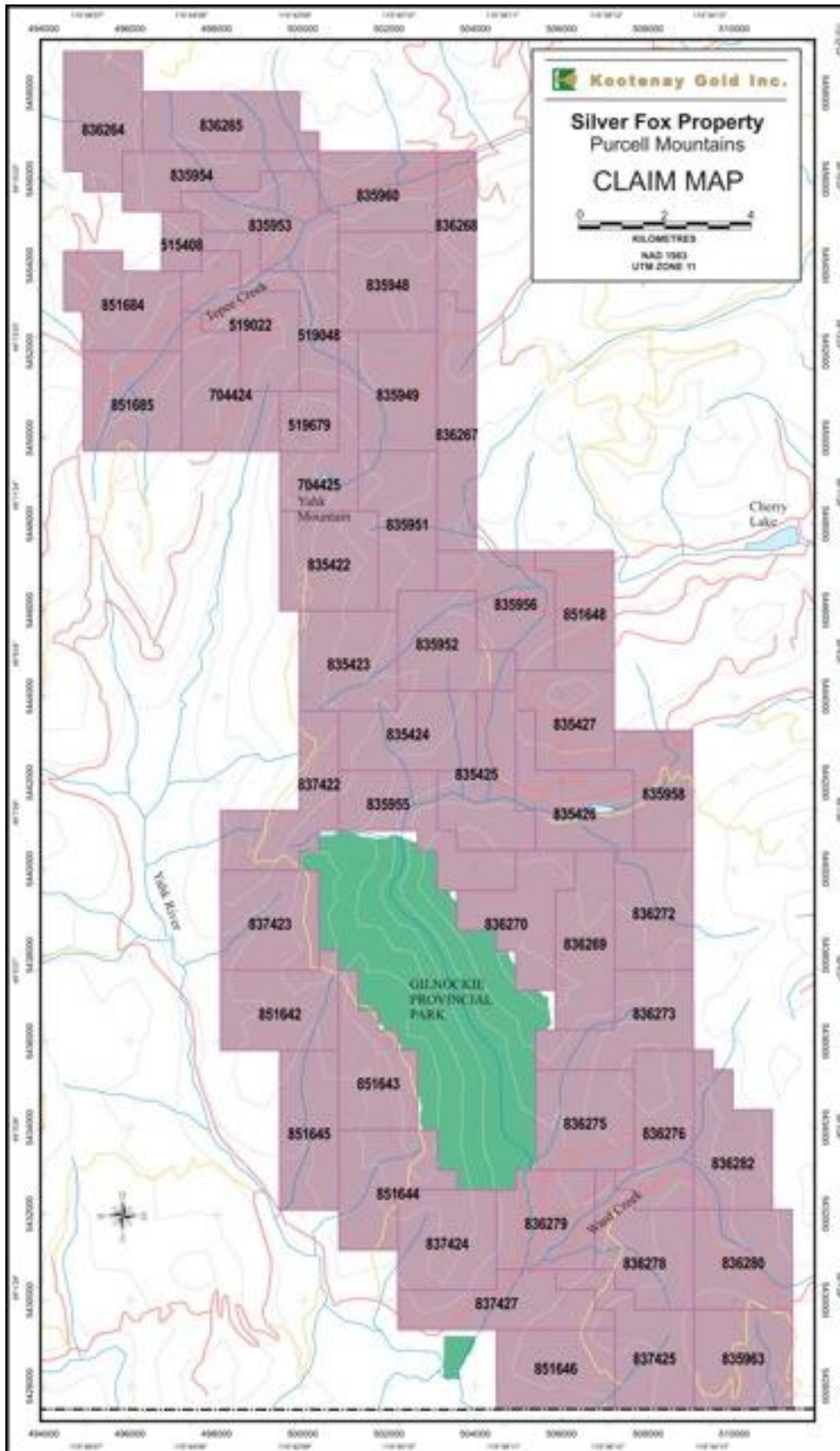


Figure 2: Silver Fox property claim map

## Exploration History

There is only one recorded mineral occurrence in the property area, the Silver Pipe showing (BC Minfile 082GSW058), but some physical evidence of past exploration and several new occurrences have been discovered by recent prospecting and geological work. As well, the past producing St. Eugene vein system occurs immediately to the north, on the eastern slopes above Moyie Lake, and this system projects southeastward on to the Silver Fox property.

The St. Eugene vein system, which includes the St. Eugene deposit and extensions to the east (Society Girl) and west (Aurora and Guindon), was discovered in the late 1880s. It was in production from 1905 to 1916, producing approximately 79 kg of gold, 182,691 kg of silver, 113,034 tonnes of lead and 14,483 tonnes of zinc from 1.47 million tonnes of ore. More recent work on the St. Eugene vein system has included geological mapping, diamond drilling (Klewchuk, 2008), and an airborne AEROTEM/Magnetic survey that extended southward into the northern part of the Silver Fox property (Klein, 2006).

Considerable exploration has been done in the vicinity of the Silver Pipe showing, northwest towards Moyie Lake and southeastward across Teepee Creek towards the Jake (Sara) vein. This work is detailed in provincial government assessment reports (Table 1) and summarized below.

Report	Property Name	Operator	Work done	Author	Date
31658	KRL	Kootenay Gold	Prospecting	S. Kennedy	2010
30660	SP and KRL	Grandeur Resources	Geological mapping	D. Pighin	2009
29810	Moyie Lake	St. Eugene Mining Corp	Drilling, geochemical	P. Klewchuk	2008
29609	KRL	D. Lavoie, S. Kennedy	Prospecting	C. Kennedy	2008
28623	KRL	D. Lavoie	prospecting	C. Kennedy	2006
28069	Silver Pipe	Sara Kennedy	prospecting	C. Kennedy	2005
26018	DEK	L. Stephenson	Magnetometer VLF Survey	L. Stephenson	1999
25799	Erin	L. Stephenson	Magnetometer VLF Survey	L. Stephenson	1999
20753	Look	Kokanee Exploration Lt	Mapping Prospecting	L. Stephenson	1990
10907	Silver Pipe	Gulf International	Diamond drilling; soil geochemistry	D.A. Yeager C.K. Ikona	1983

Table 1: List of Assessment reports, Silver Fox property

The Silver Pipe (Pipeline showing) was originally staked following construction of the gas pipeline in the mid to late 1960s. The property, originally called the Dirk property, was later renamed the Teepee property and comprised the Erdaco and Dirk claims. These were optioned to Mercury Exploration in 1969 who conducted some geological mapping, a ground magnetometer survey and trenching which defined the Gossan vein system with widths up to 5 meters and a strike length of approximately 400 meters (*see* summary in Yeager and Ikona, 1983). Yeager and Ikona (*op. cit.*) also note an EM survey done by Cominco in 1971 (J. Hamilton, internal Cominco Report, 1971).

The claims were allowed to lapse and subsequently restaked in 1980, then vended to R.G. Gifford who in turn vended them to Gulf International Ltd. Work by Pamican Development Ltd for Gulf International included a soil geochemical program, trenching, geological mapping and sampling (Yeager and Ikona, 1983). A geological map included in this 1983 report shows the location of 1982 diamond drill holes, although no reference is made to them in the text. The collars, with casing, are still visible.

Kokanee Exploration staked claims in the northern part of the Silver Pipe area in the late 1980s and conducted some reconnaissance geochemical and geological mapping (*see* summary in Stephenson, 1999). Prospecting by C. Kennedy in 1989 discovered the Jake showing south of Teepee Creek. Stephenson (1999) and Pighin (2009) both report that Auckland Resources drilled 7 holes totaling 307.7 metres in the area of the Jake vein and intersected “low-grade silver base metal mineralization associated with gabbro dykes”. However, as noted by Pighin (2009), the exact locations of these holes are not known and it is possible that they did not intersect the Jake vein.

The Erin claims were staked by L. Stephenson in 1992 to locate and evaluate the projected trend of the Pipeline showing and soil sampling, mapping and prospecting were subsequently carried out (Stephenson, 1999a). Considerable more work was done by Stephenson in the mid to late 1990s on the Erin and Dek claims; the Dek claims, staked in 1997, covered both the Jake and Silver Pipe veins. This work included geological mapping, additional prospecting and ground VLF and magnetometer surveys (*see* Stephenson, 1999a, 1999b).

D. Lavoie and S. Kennedy staked the area around the Jake and Silver Pipe veins in 2005 and optioned them to Grandeur Resources Ltd. who conducted a program of prospecting and rock and soil geochemistry, mainly in the vicinity of the Jake (renamed Sara) showings (Kennedy, 2005; 2006; 2008). Many of the collected rock samples were float but returned high values in lead (>10,000 ppm), zinc (up to 4903 ppm), silver (>100 ppm) and gold (up to 4226 ppb). Detailed mapping by Pighin (2009) in the vicinity of the Sara vein differentiated the Creston Formation, outlined areas of intense alteration, defined structural controls and better defined and delineated the Sara vein.

A regional exploration and prospecting program, carried out mainly by Craig and Sean Kennedy, recognized extensive alteration in the Creston Formation that locally extended south to the United States border. Further prospecting and reconnaissance mapping, with discovery of stratabound copper mineralization, led to comparisons with stratabound copper-silver mineralization in northern Montana and subsequently a large tract of land, the Silver Fox property, was staked.

Work during the 2011 field season included a reconnaissance silt geochemical program (Jackaman, 2012), additional prospecting (Kennedy, 2012) and geological mapping (this report).

## Regional Geology

### *Stratigraphy*

The property lies within the Purcell anticlinorium, a gently north plunging structure that is cored by Mesoproterozoic sedimentary and minor volcanic rocks of the Purcell Supergroup and flanked by unconformably overlying Neoproterozoic clastic and carbonate rocks of the Windermere Supergroup. These are generally overlain by either Cambrian or Devonian rocks, part of the North American “miogeoclinal” sequence.

The Purcell Supergroup, and correlative Belt Supergroup in the United States, comprises a syn-rift succession, the Aldridge Formation, and an overlying, generally shallow water post-rift or rift fill sequence, including the Creston and Kitchener Formations, and younger Purcell rocks (Höy, 1993) (Figures 3, 4).

The exposed part of the Aldridge Formation comprises more than 3000 meters of mainly turbidite deposits and numerous, laterally extensive gabbroic sills referred to as the Moyie intrusions. The gabbroic sills are laterally extensive, typically up to several hundred meters thick and can be traced over hundreds of square kilometers. Locally, particularly in areas of growth faulting, they cut across stratigraphy as dykes. Many of the Moyie sills have contact features that suggest intrusion into wet and partially consolidated sediments (Höy, 1993).

The Creston Formation (Figures 3, 4), host to mineralization on the Silver Fox property, is described in more detail below. It comprises dominantly green, mauve and grey siltstone, argillite and quartzite with numerous structures indicative of shallow-water to subaerial deposition. It conformably overlies upper Aldridge argillite and siltstone and is overlain by carbonate rocks of the Kitchener Formation. The Creston Formation correlates with the Burke Revett and St. Regis formations of the Ravalli Group in the United States (Harrison, 1972; Winston, 1986) and the Appekunny and Grinnel formations in the southwestern Clark Range (Price, 1964). In the Purcell Mountains, the Creston Formation comprises three main subdivisions: a basal silty succession of thin-bedded grey to green siltstone and argillite, a middle quartzitic succession of mauve siltstone and quartz arenite, and an upper succession of intermixed green argillaceous siltstone and minor quartz arenite (Hoy, 1993).

The Kitchener Formation is dominantly a carbonate unit between the Creston Formation and overlying siltstones of the Van Creek Formation. It correlates with Empire and Helena Formations in western Montana (Winston, 1986) and the middle part of the Siyeh Formation in the Galton and Clark Ranges (Price, 1964). The formation is divisible in two members, a lower green dolomitic siltstone and an upper dark grey, carbonaceous, silty dolomite and limestone (Höy, 1993).

Rocks overlying the Kitchener Formation (Figure 4) include dominantly shallow-water clastic rocks, with a prominent sequence of amygdaloidal basaltic flows, tuffs and interbedded siltstone and sandstone. The volcanic rocks, the Nicol Creek Formation (McMechan *et al.*, 1980), have been informally referred to as the “Purcell lavas” and are equivalent to unit 5b of Leech (1960) and volcanic rocks at the top of the Siyeh Formation (Reesor, 1958).



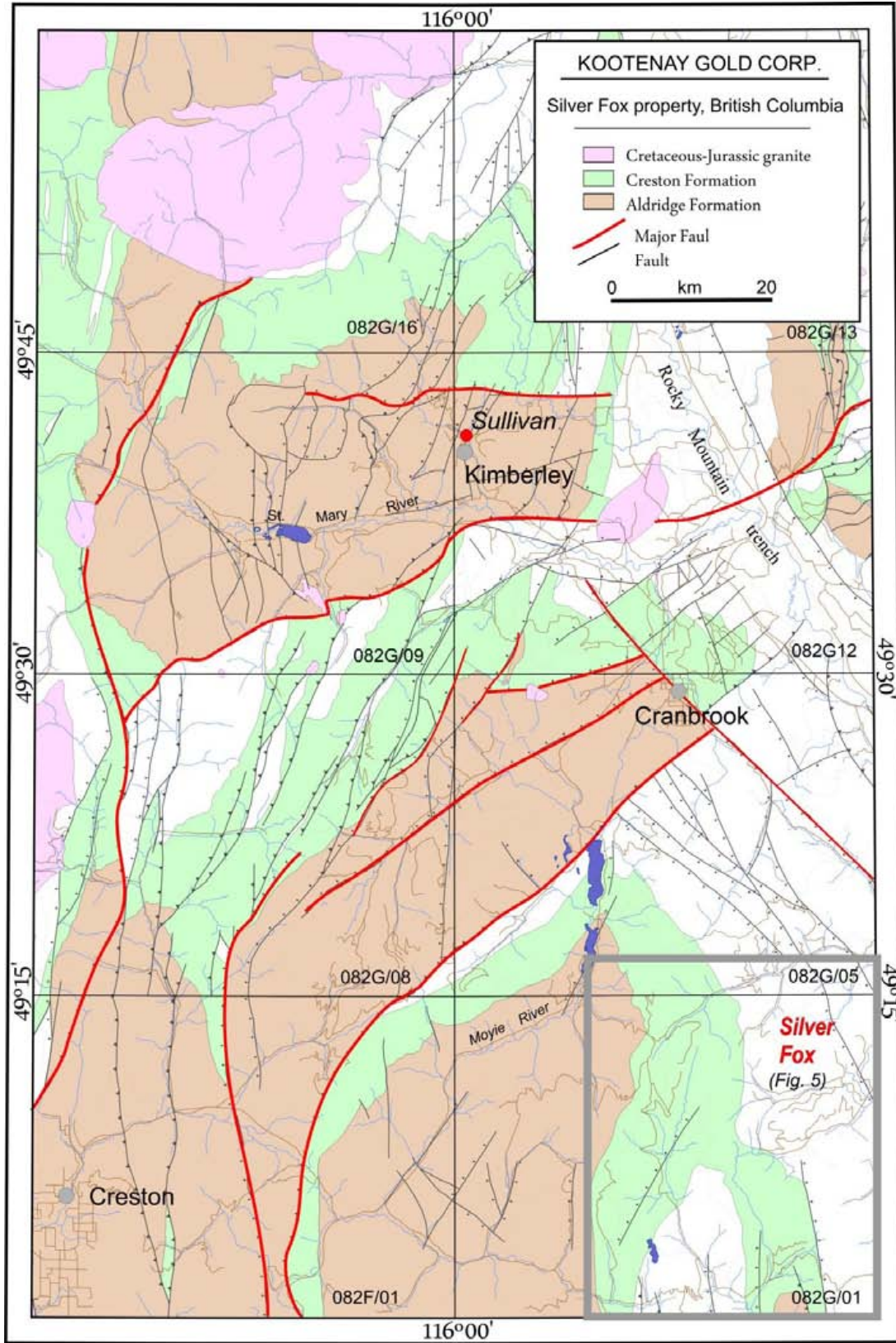


Figure 3: Regional geology, showing location of Silver Fox property (after Höy *et al.*, 1995)

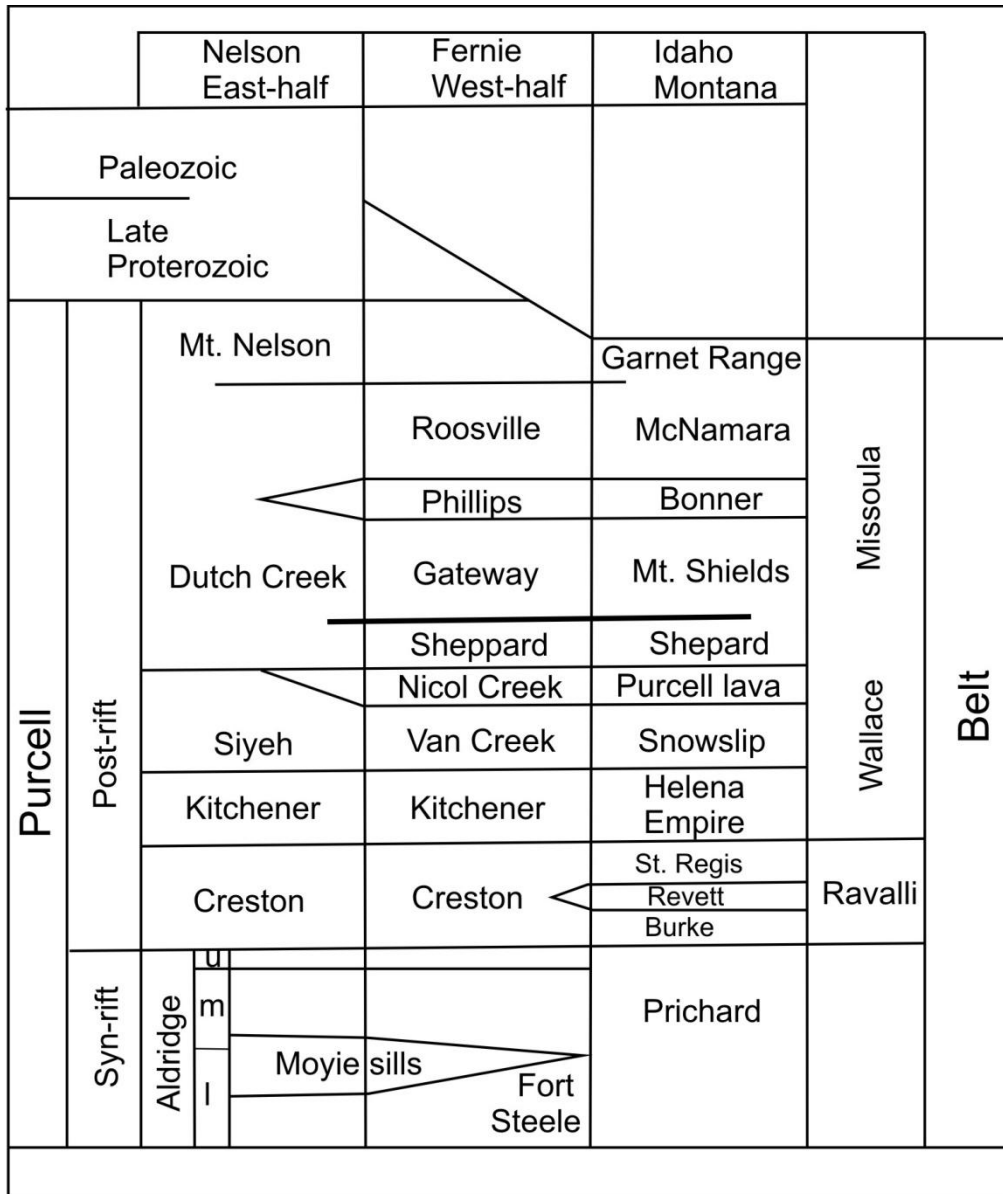


Figure 4: Correlation chart of Middle Proterozoic Purcell Supergroup (Canada) and Belt Supergroup (United States).

**Structure and tectonics**

The Silver Fox property is within the Foreland Thrust and Fold belt, the most eastern physiographic belt in the Canadian Cordillera (Monger *et al.*, 1982). The belt is characterized by shallow, east verging thrust faults and generally broad open folds in rocks that range in age from the middle Proterozoic Purcell Supergroup to Phanerozoic miogeoclinal rocks. The Purcell Supergroup is mainly exposed in a broad, shallow north plunging anticlinal structure, the Purcell anticlinorium, in the Purcell Mountains west of the Rocky Mountain trench.

Structures within the Purcell anticlinorium include east verging thrust faults, northeast trending, right lateral reverse faults, and open to tight folds (Höy, 1993). A complex array of

normal faults that trend dominantly northward parallel to the Rocky Mountain trench cut the earlier thrust faults and associated faults.

The northeast-trending structures, including the St. Mary and Moyie faults, are within or parallel to a broad structural zone that cuts the Purcell anticlinorium, crosses the Rocky Mountain trench and extends northeastward across the Foreland thrust belt (Kanasewich, 1968). This zone is marked by a conspicuous change in the structural grain, from northerly north of the zone to northwesterly south of the zone, and by pronounced and fundamental changes in the thickness and facies of sedimentary rocks that range in age from Middle Proterozoic to early Paleozoic (Höy, 1993). Furthermore, the zone appears to have focused a variety of deposit and metallotects that range in age from the stratiform middle Proterozoic Sullivan deposit to Paleozoic carbonate replacement base metal deposits to gold and copper mineralization related to Jurassic and Cretaceous magmatism (Höy, 1982). The Silver Fox property lies along the southern edge of this structural zone, south of the east-northeast trending Moyie fault.

### **Local Geology**

The Silver Fox property was initially mapped by Leech (1960) as part of his regional study of the 1:250,000 Fernie map sheet. More recent work by Höy *et al* (1995) included some reconnaissance mapping and a compilation at 1:100,000 scale. The geology of the 1:20,000 Yahk map sheet, which covers the Silver Fox property, has been recently compiled by Brown and MacLeod (2010). A geological map of the property is shown in Figures 5 and 5a. This work is based on both compilation work and recent (2011) mapping by Doug Anderson in the south and central part and by T. Höy and M. Seabrook in the north, shown as Figure 6.

#### ***Structure***

The Silver Fox property lies along the eastern limb of the Purcell anticlinorium, a broad, upright generally north-trending structure that dominates the southern Purcell Mountains. Several large, open folds, typically with faulted limbs, occur in the southern part of the area. Stratigraphic units throughout the area generally trend north with shallow east or, less commonly, west dips. North-trending normal faults or reverse faults, recognized by removal or displacement of units are recognized in the southern part of the area, and west and northwest-trending faults farther north.

An open, gently south plunging syncline occurs in the southwestern part of the property, continuing southward across the border into the United States (Figures 5, 5a). It is cored by the Van Creek and Kitchener formations and flanked by rocks of the Creston Formation. To the east, a gently north-plunging anticline is cored by upper middle Aldridge rocks; the upper Creston and part of the Middle Creston are missing on the flanks, inferred to be removed by north-trending normal (?) faults (Figures 5, 5a). Farther east, a parallel fault is inferred to have removed upper Creston stratigraphy as middle Creston is contact with Kitchener Formation.



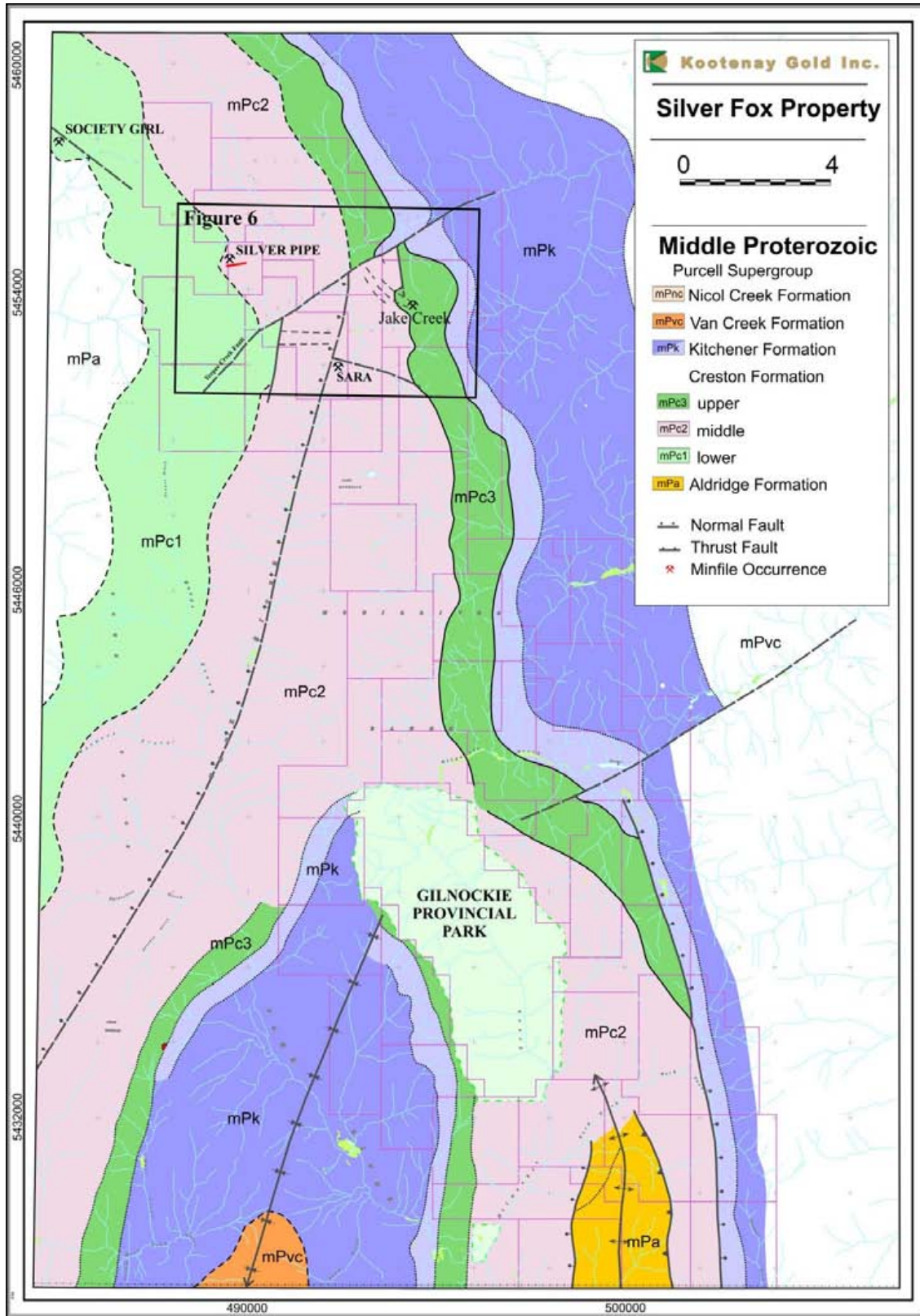


Figure 5: Geology of the Silver Fox property; see Figure 3 for location and regional geology. Figure 5a shows 2011 geological mapping at 1:50,000 scale.



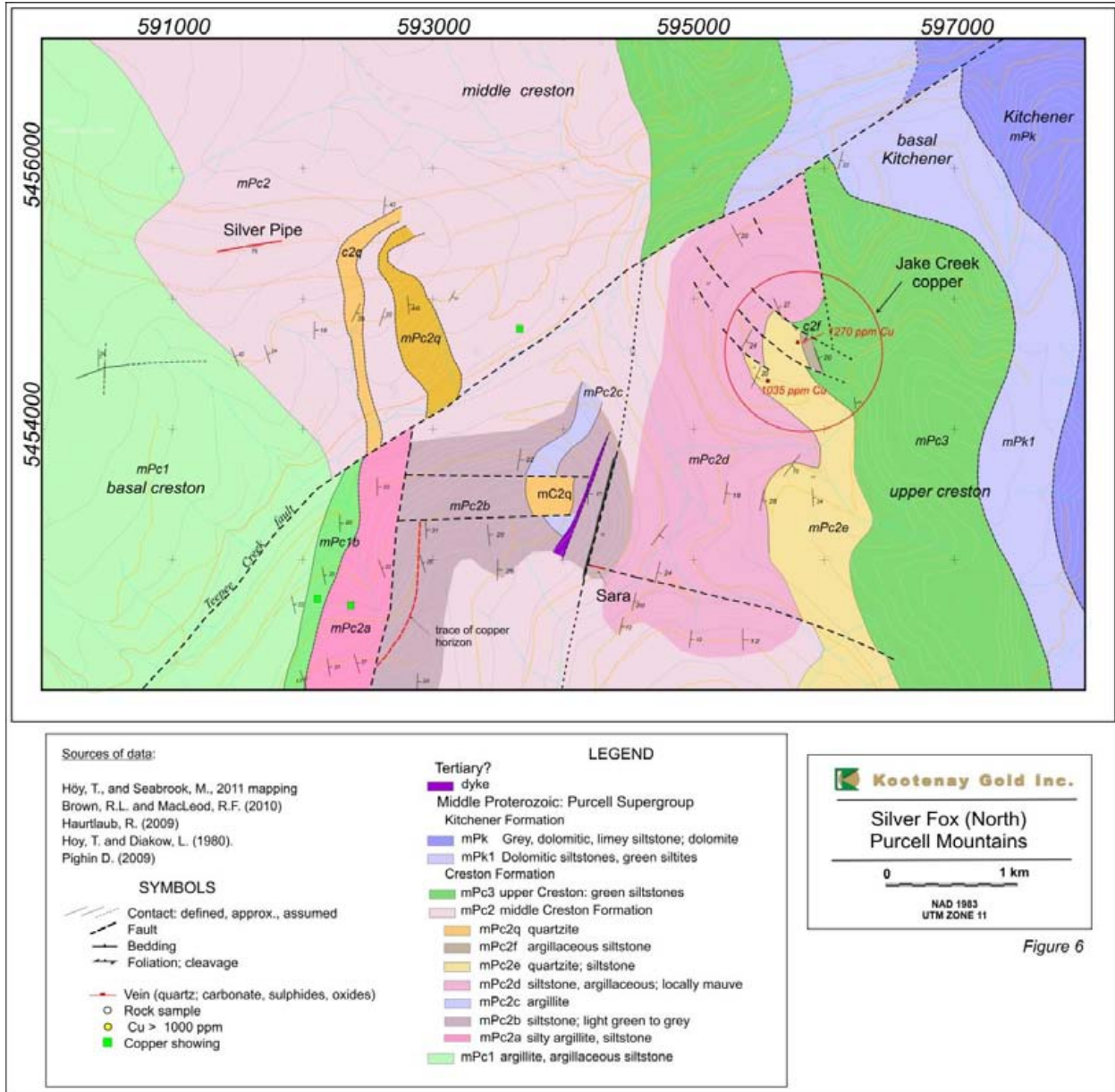


Figure 6

Figure 6: Geology of the northern part of the Silver Fox property (see Figure 5 for regional geology and Figure 6a for geology at 1:5,000 scale)

The faults on the limbs of the anticline have significant displacements with normal movement on the western fault and a reverse movement on the eastern. Displacements on these are in the order of at least several hundreds of metres as documented by stratigraphic offsets. Reconnaissance mapping farther north has identified areas where faulting is probable but more outcrop information is needed to document details about any individual fault.

Only limited mapping has been done farther north, in the area west of Ranger and Cherry Lakes (Figure 5a). A review of the relief and magnetic maps suggests a north-south fault exists along the Yahk River valley and a northeast-trending fault probably follows the Teepee Creek drainage. Mapping will help determine the existence and nature of these faults.

Considerable more detailed mapping has been done in the northern part of the Silver Fox property in the vicinity of the known mineral occurrences. A more detailed map (Figures 6, 6a) is based on mapping by Pighin (2009), Hartlaub (2009), work by the authors in 2011 and discussions with Sean Kennedy and Craig Kennedy.

The northern area has been cut by a variety of high angle faults that may be related to a prominent southeast trending structural zone that cuts across the nose of the Moyie anticline at Moyie Lake and continues into the northern part of the property. The zone appears to have a repeated history of movement, beginning in Middle Proterozoic time with development of sedimentary fragmentals in the upper levels of the St. Eugene mine and in the Society Girl area. Most mineralization within the northern part of Silver Fox area is within this broad structural zone, including the Silver Pipe veins, Sara veins and stratabound copper mineralization farther southeast. It is possible that this structural zone swings more southerly to the south, parallel to mapped or inferred structures in the central and southern parts of the Silver Fox property

Several west-trending structures, with mineralization (Sara and Silver Pipe) and intense alteration as mapped by Pighin (2009) are along steep faults that appear to have only minimal displacement. Pighin (*op. cit.*) also describes three north-northeast trending faults on the Sara property (Figure 6). The most westerly, a steep west dipping fault within the middle Creston unit truncates a copper horizon and several quartzite layers. The two more eastern faults cut the Sara vein, with a displacement of 80 meters on the upper (western) fault and 300 meters on the lower fault. As noted by Pighin these faults align with the Yahk River linear, lending support to the interpretation that the linear is a regional fault as shown in Figure 5.

Several northwest-trending faults occur in the area of stratabound copper southeast of the Sara vein (Figure 6). These are marked by minor offsets of units (up to 10s of meters), small topographic linears, zones of gouge or shearing along road outcrops and locally abrupt thickness changes in the quartzite layers. They parallel and approximately align with the St. Eugene-Society Girl structure and may be a record of the earliest faults on the property.

A northeast-trending fault is inferred to follow the prominent linear of Teepee Creek (Figures 5, 6). Evidence for this fault includes a difficulty in clearly matching or aligning Creston stratigraphic units across the Teepee Creek valley and apparent displacement of the basal Kitchener unit across the linear, as is schematically shown in Figure 6. However, considerable more mapping is required to clearly document this fault, its attitude or displacement.

### ***Lithologic units***

As silver-copper deposits in Montana are controlled, in part, by lithologies of the Ravalli Group, subdivisions of the correlative Creston Formation on the Silver Fox property appear to control distribution of stratabound copper mineralization. The subdivisions of the Creston Formation are shown in Figures 5 and 6 and described below. They are based on detailed mapping by Pighin (2009) in the area of the Sara vein and mapping by the authors in 2011.

The Creston Formation has traditionally been subdivided into three informal members and these subdivisions are apparent throughout the Silver Fox property. The lower Creston (mPc1, Figure 5) comprises approximately 1000 metres of light to dark grey to greenish argillites and siltstones with couplet-style bedding. It contains occasional quartzitic beds in its upper part. The lower Creston can be rusty weathering as it is transitional with the upper Aldridge. It is correlative with the Burke Formation in Montana (Figure 4).

The middle Creston (mPc2) comprises grey-weathering, grey, green, white and mauve siltstones and fine to medium grained quartzites, commonly with argillaceous partings. As well, some interbeds of coarser, reddish lenticular arenites or thin-bedded grey argillite occur locally. Structures are common and indicative of shallow water or current activity (Photo 1). In the vicinity of the stratabound copper occurrences, quartzites and siltites with dolomitic cement occur. Disseminated magnetite is common in unit mPc2. The thickness of mPc2 is estimated to be up to 1500 metres although there may be structural repetitions. The unit is roughly correlative with the Revett Formation, host to stratabound silver-copper mineralization in Montana.

The upper Creston (mPc3), 700 to 850 metres in thickness, is correlative with the St. Regis Formation. It comprises thin bedded to laminated, variably green and grey argillites and siltstones with lenticular carbonate beds. Mud-chip breccias, syneresis cracks and cross-bedding are common. Disseminated magnetite may be present. The top of the upper Creston is transitional into carbonate rich beds of the Kitchener Formation. It includes 400 to 500 meters of thin bedded green and grey, rusty weathering argillites and siltstones with orange weathering carbonate lenses and some micro-grained argillites. Some coarse-grained, white, lenticular-bedded quartzites are present. There are some grey and dark grey dolomitic argillites higher in the section. Unique to the area is splashy limonite after pyrite clots.



Photo 1: Flute casts at base of siltstone layer, Creston Formation

## Mineralization and alteration

### *Introduction*

Past exploration on the Silver Fox property has been restricted to the northern part where the extension of the St. Eugene vein system is recognized at several localities. Several operators have pursued small lead-zinc vein showings in the Teepee creek area. Mapping, soil geochemistry, trenching and a small amount of diamond drilling have been done at the Silver Pipe and KRL locations as discussed in “Exploration history”.

In addition to the presence of Pb-Zn-Ag in cross-cutting veins there is the potential for sediment-hosted, stratabound copper-silver within the middle Creston, based on comparisons with Montana and Idaho geology (Hartlaub, 2009). The Revett Formation in Idaho and Montana, roughly correlative with central part of the Creston formation, hosts numerous showings and four large copper-silver deposits. These include:

Troy Mine (Spar Lake)	80 M-t	0.7% Cu	43g/t Ag
Rock Creek	124.2 M-t	0.72% Cu	45g/t Ag
Montanore	136 M-t	0.78% Cu	60g/t Ag
Snowstorm	0.8 M-t	4% Cu	6 oz/t Ag

The nearest deposit is Spar Lake, about 84 kilometres south of the Canadian border. The other two large deposits are 23 to 25 kilometres southeast of Spar Lake.

The copper-silver deposits occur within the Mesoproterozoic Revett Formation, a package of quartzite, silty quartzite, siltite and argillite which is divided into sequences dominated by each of the lithologies. The ore-grade sulphides are dominantly in medium to coarse-grained, thin to thick bedded quartzites. At the Troy Mine, ores occur in the upper and lower members of the Revett with a vertical separation of about 160 meters. The mineralization crosscuts the sediments at shallow angles with ore grades confined to individual members. The ore occurs along oxide (hematite) to reduced (pyrite) boundaries between the chalcopyrite-ankerite and pyrite-calcite facies.

A small study of the Teepee/Yahk River area under Geoscience BC by R. Hartlaub (2009) documented the presence of copper mineralization within the middle Creston; subsequent prospecting and rock geochemical sampling confirmed the presence of stratabound copper at several locations as well as regional alteration patterns that are assumed related to stratabound copper mineralization. The following descriptions of alteration and mineralization are based on mapping and prospecting this past summer, as well as compilation of data in the northern part of the area.

### *Alteration*

The Silver Fox property was staked mainly as a target for stratabound copper-silver mineralization after recognition by Kennedy prospectors of extensive zones of regional alteration that extended southward in the Creston Formation, from the Society Girl and Silver Pipe vein mineralization to the United States border. Follow up geological mapping (this report) is preliminary, but does broadly help define this alteration and related mineralization. Alteration and associated mineralization is also described in a report by Kennedy (2012).

The regional zones of alteration are dominated by sericite with manganese and variable disseminated pyrite and limonite, possibly after the pyrite or magnetite. With increasing intensity, and closer to mineralization, carbonate, hematite, silica and chlorite alteration assemblages dominate.

Locally, both structures and lithologies appear to control the distribution of alteration assemblages. In areas of intense alteration, in the vicinity of the Sara vein and west-trending faults in the northern part of the claim block, Pighin (2009) has shown that alteration fronts are spatially associated with the faults (Figures 6, 7). Vein mineralization, including both iron oxides and base metals, occurs within the fault zones associated with intense silica - as quartz veining or fine disseminations of quartz in host rocks. Hematite, with variable magnetite and manganese is pervasive in zones of intense alteration adjacent to the faults, typically forming clearly defined oxidation fronts (Photo 2). Farther from faults zones, these (mainly hematite and manganese oxides) are restricted to veins which decrease in abundance and thickness as alteration decreases (Photo 3). Carbonate alteration (dolomite?, siderite?) overlaps iron and manganese oxides but may extend beyond vein oxides as disseminated clots (spots) in coarser (more brittle or permeable) units. Sericite alteration, with or without hematite veining, is clearly more regional.



Photo 2: Intense hematite alteration surrounding thin, parallel fracture-controlled veins in bleached (argillic-altered) siltstone in the middle Creston; slopes above Sara vein.





Photo 3: Fracture controlled hematite and manganese oxide (pyrolusite?), also within bleached (argillic altered) siltstone; this alteration is less intense than is shown in Photo 2.

Alteration associated with stratabound copper mineralization is more regional in extent but appears similar to and spatially associated with vein mineralization. It has not been studied in detail, and the following observations are based mainly on mapping in the vicinity of the Jake Creek zone in the northern part of the area (Figure 7). Most of this mapping is confined to access roads as natural outcrops are scarce. As noted below, copper mineralization occurs at several horizons, but generally associated with (less reactive) quartzite units. Roughly concentric zones of alteration intensity are shown in Figure 7, centered on copper mineralization within the quartzites or adjacent siltite and argillaceous beds. The most intense alteration includes (in reactive beds) matrix carbonate (siderite, dolomite?), chlorite, pervasive sericite and vein and disseminated manganese oxide. Extensive carbonate is not noted elsewhere in the middle Creston formation and hence it is assumed to be an alteration assemblage related to mineralization. With decreasing intensity, manganese and iron oxides are restricted to veinlets and sericite and argillite “bleaching” decreases. The sericite alteration produces a pale, watery-green colour in argillaceous and silty beds and locally largely obliterates or masks original lithologies and sedimentary textures. Weak “distal” alteration comprises pale grey, clay-altered argillite beds. Locally, however, white (argillic or clay) alteration is intense.

### ***Mineralization***

Sara and Silver Pipe veins have been described in some detail in earlier assessment reports and are only briefly reviewed here. The Sara vein (Pighin, 2009; Kennedy, 2010) is a steeply dipping vein in a west-striking fault zone. It has been traced or extrapolated through a strike length of 1400 meters (Pighin, *op. cit.*) with widths appearing to increase where the vein intersects north-trending faults. The vein is highly oxidized comprising mainly quartz, cerussite, hemimorphite and pyromorphite. Pighin describes several drill holes that intersected the vein with strongly anomalous values: DDH 90-7 included 18 m that averaged approximately 16562 ppm Pb, 14.5 ppm Ag, and 11 ppm Hg; DDH 90-2, included 26 m with approximately 4182 ppm Pb, 23 ppm Ag and 1.3 ppm Hg. The locations of the collars are not known. Kennedy (2010)

reported that hand trenching was only partially successful in exposing the vein, mainly due to deep overburden. A grab sample of cerussite analyzed 62.9% lead with 458 ppm zinc and at the same trench, a 100 cm chip sample contained 22% lead and 73.9 ppm Ag. The vein was exposed in two other hand trenches with widths of 100 to 130 cm; chip samples returned values greater than 1% lead and anomalous silver (Kennedy, 2010).

The Silver Pipe vein is on the ridge and slopes between Oka and Teepee Creeks, north of the Sara vein (Yeager and Ikona, 1983). The vein comprises mainly iron and manganese oxides with base metal values; it has been traced through a strike length of 1000 meters with widths ranging from 0.6 to 3.0 meters. It is steeply dipping and strikes east-west, locally offset by faults with small displacements. Massive vein material comprises mainly “goethite, limonite, magnetite and hematite” with rare jamesonite, a lead-iron-antimony sulphide. Numerous samples of the vein, both from outcrop (trenches) and float have returned highly anomalous lead, zinc and copper values (see, for example, Kennedy, 2006; 2008)

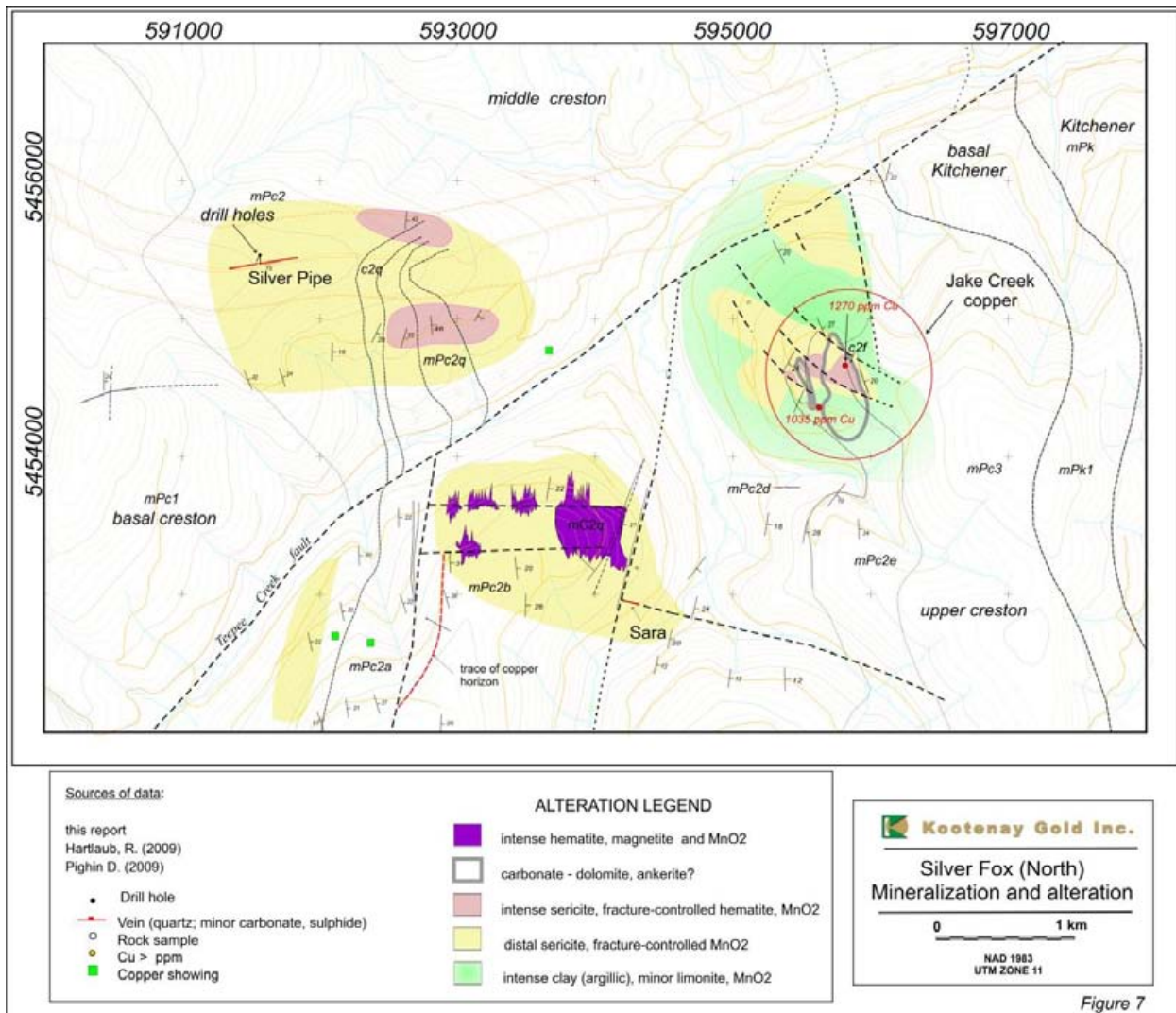


Figure 7

Figure 7: Mineralization and alteration patterns in the northern part of the Silver Fox property.



The stratabound copper mineralization, referred to as Jake Creek, was discovered by S. Kennedy on a rounded hill 2 kilometers northeast of the Sara vein. Since that initial discovery, at least four other areas with stratabound copper mineralization have been discovered on the Silver Fox property, as well as areas with similar alteration signatures; these have not been mapped by the authors. Styles of copper mineralization are variable, comprising mainly chalcopyrite and malachite, with accessory galena, arsenopyrite, bornite and pyrite, disseminated and in fine fractures in pure white to tan quartzites, calcareous siltstones and intense sericite-altered siltstones. Mineralization occurs over a considerable stratigraphic interval, probably in excess of 50 meters, within the middle, mainly quartzitic member of the Creston Formation. The strike lengths of the mineralized zones are not known as exposures on lower slopes are virtually restricted to road cuts. Several northwest-trending faults are recognized in the immediate area of the Jake Creek mineralization (Figures 6, 7), and these and primary lithologies appear to be the main controls to mineralization.



Photo 4: Mineralized quartzite, Jake Creek stratabound copper zone; note malachite, MnO<sub>2</sub> (pyrolusite?) and jarosite alteration;

Analyses of samples of Jake Creek mineralization are given by Kennedy (2012); analyses of two mineralized quartzite samples collected by T. Höy are given in Appendix 5, descriptions in Appendix 4, and their locations shown on Figure 7. These were submitted to Acme Analytical Laboratories in Vancouver for multi-element ICP-MS analyses. The samples are anomalous in copper and silver, returning values 1035 and 1270 ppm Cu and 2.9 and 9.9 ppm silver.



## **Summary and recommendations**

The Silver Fox property comprises approximately 204 square kilometers in the southern Purcell Mountains in southeastern British Columbia optioned to Kootenay Gold Inc. The property is underlain mainly by the Mesoproterozoic Creston Formation, correlative with the host rocks of the large stratabound silver-copper deposits of Montana and Idaho.

Historical and recent work in the northern part of the property has recognized several oxidized east-west trending silver-base metal veins that appear to be related to the St. Eugene-Society Girl vein system immediately to the northwest. Prospecting and mapping farther south, extending 30 km to the United States border, has discovered numerous areas and occurrences of stratabound copper mineralization as well as zones of regional alteration that may be related to these zones of mineralization. The most northern of these, the Jake Creek showing, is characterized by disseminated and fracture-controlled copper mineralization surrounded by roughly concentric and overlapping zones of silica, hematite, manganese, sericite and clay alteration. Controls of mineralization and alteration appear to be both structural, related to small-displacement, northwest trending faults within the more regional north to northwest trending St. Eugene system, and stratigraphic, within the central, coarser grained and more permeable middle member of the Creston Formation.

Outcrops throughout the Silver Fox property are limited, largely restricted to road cuts and logging access roads. Hence regional airborne geophysical and stream geochemical programs are effective early exploration programs. Due to the distinctive magnetic characteristics of the Creston Formation an airborne magnetic survey should distinguish and help map units and favourable stratigraphy, define structures, and possibly recognize, through destruction of magnetite, alteration zones. An airborne EM survey would help define zones of conductivity that may be related to widespread copper sulphide mineralization and a radiometric survey, sericite alteration recognized as regional signatures around both vein and stratabound mineralization.

Additional mapping and sampling should be concentrated in areas of known alteration or in anomalous areas defined by both geophysics and the regional silt geochemical survey. Follow up work in these areas could include more detailed ground geophysics and either soil or biogeochemical surveys, both known to be effective in this terrain.

Based on results of these preliminary surveys, trenching with follow up diamond drilling may be recommended.

## **Acknowledgements**

We would like to thank our field assistants, J. Seabrook and T. Levson, during the course of both regional and more detailed mapping. Discussions with Craig Kennedy, Sean Kennedy and R. Hartlaub were helpful in understanding the geology and mineralization in the Silver Fox area. W. Jackaman prepared field base maps and some of the final diagrams.

## References

- Brown, D.A. and MacLeod, R.F. (2010): Geology, Yahk River, British Columbia; *Geological Survey of Canada*, Open File 6305, scale 1:50,000.
- Harrison, J.E. (1972): Precambrian Belt basin of northwestern United States: its geometry, sedimentation, and copper occurrences; *Geological Society of America*, Bulletin, volume 83, pages 1215-1240.
- Hartlaub, R. (2009): Sediment-hosted stratabound copper-silver-cobalt potential of the Creston Formation, Purcell Supergroup, southeastern British Columbia; *in Geoscience BC; Summary of Activities 2008*, Report 2009-1, pages 123-132.
- Höy, T. (1982): Stratigraphic and structural setting of stratabound lead-zinc deposits in southeastern British Columbia; *Canadian Institute of Mining and Metallurgy*, volume 75, pages 114-134.
- Höy, T. (1993): Geology of the Purcell Supergroup in the Fernie W-half map area, southeastern British Columbia; *B.C. Ministry of Energy and Mines*, Bulletin 84, 157 pages.
- Höy, T., Price, R., Legun, A., Grant, B. and Brown, D. (1995): Purcell Supergroup, southeastern British Columbia; *B.C. Ministry of Energy and Mines*, Geoscience Map 1995-1.
- Jackaman, W. (2012): Reconnaissance stream geochemical program, Silver Fox claims, southeastern British Columbia; *B.C. Ministry of Energy and Mines*, Assessment report, in preparation.
- Kanasewich, E.R. (1968): Precambrian rift: genesis of stratabound ore deposits; *Science*, v. 161, pages 1002-1005.
- Kennedy, C. (2005): Prospecting report, SR Property, Fort Steele Mining Division; *B.C. Ministry of Energy and Mines*, Assessment report 28069, 9 pages.
- Kennedy, C. (2006): Prospecting program, KRL Property, Fort Steele Mining Division; *B.C. Ministry of Energy and Mines*, Assessment report 28623, 9 pages.
- Kennedy, C. (2008): Prospecting report on the KRL Property; *B.C. Ministry of Energy and Mines*, Assessment report 29609, 10 pages.
- Kennedy, S. (2010): Rock geochemistry, KRL property, Fort Steele Mining Division, southeastern British Columbia; *B.C. Ministry of Energy and Mines*, Assessment report 31658, 5 pages.
- Kennedy, S. (2012): Prospecting report on the Silver Fox property, southeastern British Columbia; *B.C. Ministry of Energy and Mines*, Assessment report, in preparation.
- Klein, J. (2006): Report on a helicopter-borne Aerotem II/Magnetic survey over Moyie Lake and Monroe Lake grids, SE British Columbia, executed by Aeroquest Limited; *B.C. Ministry of Energy and Mines*, Assessment report 28450, 41 pages.
- Klewchuk, P. (2008): Assessment report on diamond drilling, North Structure area, Moyie Lake, British Columbia; *B.C. Ministry of Energy and Mines*, Assessment report 29810, 32 pages.
- Leech, G.B. (1960): Geology Fernie (west-half), Kootenay District, British Columbia; *Geological Survey of Canada*, Map 11-1960.

- McMechan, M., Höy, T. and Price, R.A. (1980): Van Creek and Nicol Creek formations (new): a revision of the stratigraphic nomenclature, Belt-Purcell Supergroup, southern British Columbia; *Bulletin of Canadian Petroleum Geology*, volume 28, pages 542-558.
- Monger, J.W., Price, R.A. and Tempelman-Kluit, D.J. (1982): Tectonic accretion and the origin of two major metamorphic and plutonic welts in the Canadian Cordillera; *Geology*, v. 10, pages. 70-75.
- Pighin, D.L. (2009): The SP and PRL claims, southeastern B.C.; *B.C. Ministry of Energy and Mines*, Assessment report 30660, 17 pages
- Price, R.A. (1964): The Precambrian Purcell system in the Rocky Mountains of southern Alberta and British Columbia; *Bulletin of Canadian Petroleum Geology*, volume 12, pages 399-426.
- Reesor, J.E. (1958): Dewar Creek map area with special emphasis on the White Creek batholith, British Columbia; *Geological Survey of Canada*, Memoir 292, 78 pages.
- Stephenson, L. (1999): Report on a geological mapping and prospecting program, Look Property, Cranbrook, B.C.; B.C. Ministry of Energy and Mines, Assessment report 20753, 10 pages.
- Stephenson, L. (1999a): Report on a magnetometer and VLF EM geophysical survey, Erin Property; *B.C. Ministry of Energy and Mines*, Assessment report 25799, 7 pages.
- Stephenson, L. (1999b): Report on a magnetometer and VLF geophysical survey, Dek Property; *B.C. Ministry of Energy and Mines*, Assessment report 26018, 12 pages
- Winston, D. (1986): Sedimentation and tectonic of the middle Proterozoic Belt Basin, and their influence on Phanerozoic compression and extension in western Montana and northern Idaho; *in* Paleotectonics and Sedimentation in the Rocky Mountain Region, United States, Peterson, J. Editor, *American Association of Petroleum Geologists*, Memoir, Part II, pages 87-118.
- Yeager, D.A and Ikona, C.K. (1983): Geological and geochemical report on the Silver Pipe 1-16 mineral claims, Moyie Lake area; *B.C. Ministry of Energy and Mines*, Assessment report 10,907, 27 pages.

## APPENDIX 1: LIST OF CLAIMS

Tenure Number	Claim Name	Owner		Map Number	Orig. Stake Date	Good To Date	Area
515408	SP	146632 (100%)	SAK	082G.022	Jun-27-2005	Aug/10/2012	126.5350
519022	KRL	132094 (100%)	DL	082G.022	Aug-13-2005	Aug/10/2012	527.4060
519048	KRL 2	132094 (100%)	DL	082G.022	Aug-14-2005	Aug/10/2012	400.8020
519679	KRL 3	132094 (100%)	DL	082G.022	Sep-04-2005	Aug/10/2012	189.9460
704424	KRL 04-10	132094 (100%)	DL	082G	Jan-23-2010	Aug/10/2012	527.5704
704425	KRL 05-10	132094 (100%)	DL	082G	Jan-23-2010	Aug/10/2012	379.9387
835422	KRL 06-10	142365 (100%)	SK	082G	Oct-08-2010	Aug/10/2012	527.935
835423	KRL 07-10	142365 (100%)	SK	082G	Oct-08-2010	Aug/10/2012	528.1525
835424	KRL 08-10	142365 (100%)	SK	082G	Oct-08-2010	Aug/10/2012	528.3202
835425	KRL 09-10	142365 (100%)	SK	082G	Oct-08-2010	Aug/10/2012	528.4385
835426	KRL 10-10	142365 (100%)	SK	082G	Oct-08-2010	Aug/10/2012	528.4733
835427	KRL 11-10	142365 (100%)	SK	082G	Oct-08-2010	Aug/10/2012	464.8987
835948	KRL 12-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	527.3183
835949	KRL 13-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	506.4601
835951	KRL 14-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	527.8481
835952	KRL 15-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	507.0073
835953	KRL 16-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	527.1879
835954	KRL 17-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	421.6778
835955	KRL 18-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	524.5569
835956	KRL 19-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	528.0383
835958	KRL 20-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	422.7539
835960	KRL 21-10	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	484.9516
835963	BLACK TOOTH	142365 (100%)	SK	082G	Oct-14-2010	Aug/10/2012	529.6923
836264	KRL 22-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	526.9818
836265	KRL 23-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	526.9791
836267	KRL 24-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	527.6424
836268	KRL 25-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	316.3192
836269	KRL 26-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	528.7888
836270	KRL 27-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	483.4412
836272	KRL 28-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	507.5639
836273	KRL 29-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	528.9604
836275	KRL 30-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	524.2431
836276	KRL 31-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	529.1933
836278	KRL 33-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	529.4402
836279	KRL 34-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	499.7333
836280	KRL 35-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	529.4758
836282	KRL 36-10	142365 (100%)	SK	082G	Oct-19-2010	Aug/10/2012	529.2259
837422	KRL 100-10	142365 (100%)	SK	082G	Nov-03-2010	Aug/10/2012	527.0675
837423	KRL 101-10	142365 (100%)	SK	082G	Nov-03-2010	Aug/10/2012	525.5498
837424	KRL 102-10	142365 (100%)	SK	082G	Nov-03-2010	Aug/10/2012	516.3739
837425	KRL 103-10	142365 (100%)	SK	082G	Nov-03-2010	Aug/10/2012	529.6493
837427	KRL 104-10	142365 (100%)	SK	082G	Nov-03-2010	Aug/10/2012	508.3735

**APPENDIX 2:  
STATEMENT OF COSTS**

---

Geological mapping

Field mapping (T. Höy): 9 days @ \$600/day	\$ 5400.00
travel and accommodation (Hoy and Seabrook)	2660.85
Field mapping: (D. Anderson): 11 days @ \$500/day	\$ 5500.00
travel	1676.50
Field mapping: (M. Seabrook): 7 days @ \$450/day	\$ 3150.00
travel	907.17
Assistant (T. Levson): 6 days @ \$200/day	\$ 1200.00
accommodation	303.85
Report preparation / filing	\$5000.00
Report (data compilation, drafting)	<u>\$2400.00</u>

**Total:** **\$28,198.37**

**APPENDIX 3a:**  
**STATEMENT OF QUALIFICATIONS: T. Höy**

---

I, Trygve Höy, PhD., P. Eng. do hereby certify that:

1. I attained the degree of Doctor of Philosophy (PhD) in geology from Queens University, Kingston, Ontario in 1974.
2. I have an MSc. in Geology from Carleton University, Ottawa, Ontario (1970), and a BSc. in Geology from the University of British Columbia (1968).
3. I am a member of the Association of Professional Engineers and Geoscientists of BC. and a member of the Society of Economic Geologists.
4. I have worked as a geologist for a total of 36 years since my graduation from university, 27 years as a project geologist with the B.C. Geological Survey Branch and 9 years as an independent consulting geologist.
5. I spent 9 days geologic mapping the Silver Fox property in 2011.
6. I and my co-authors, D. Anderson and M. Seabrook, are responsible for the preparation of this report entitled: **Geology of the Silver Fox property, Purcell Mountains, southeastern British Columbia**, dated January 15, 2012.

Dated this 15<sup>th</sup> Day of January, 2012.

---

Trygve Höy, P.Eng; PhD.

**APPENDIX 3b:**  
**STATEMENT OF QUALIFICATIONS: D. Anderson**

---

I, Douglas Anderson, Consulting Geological Engineer, have my office at #100 – 2100 13<sup>th</sup> Street South in Cranbrook, B.C., V1C 7J5.

I graduated from the University of British Columbia in 1969 with a Bachelor of Applied Science in Geological Engineering.

I have practiced my profession since 1969, predominantly with one large mining company, in a number of capacities all over Western Canada and since 1998 within southeastern B.C. as a mineral exploration consultant.

I am a Registered Professional Engineer and member of the Association of Professional Engineers and Geoscientists of B.C., and I am authorized to use their seal which has been affixed to this report.

---

Douglas Anderson, P.Eng.

**APPENDIX 3c:**  
**STATEMENT OF QUALIFICATIONS: M. Seabrook**

---

I, Michael Sean Seabrook, BSc. do hereby certify that:

1. I attained the degree of Bachelor of Science (BSc.) in geology from the University of Calgary, Calgary, Alberta in 2008.
2. I have worked in the geological exploration industry for 4 years as an independent contractor.
3. I spent 7 days on the Silver Fox property in 2011 doing geological mapping, sampling and reconnaissance work.
4. I am coauthor of this report entitled: *Geology of the Silver Fox property, Purcell Mountains, southeastern British Columbia* dated January 15th, 2012.

---

M. Seabrook



**APPENDIX 4:**  
**DESCRIPTION AND LOCATION OF ANALYZED SAMPLES**

Note: all samples collected by M. Seabrook and T. Höy

See Appendix 5 for complete analyses and methods.

<b>Sample</b>	<b>Northing</b>	<b>Easting</b>	<b>Description</b>	<b>Collector</b>
SF11-04	592559	5455661	Quartz vein in a graphitic fault zone, with magnetite, carbonate and, in footwall, hematitic alteration zone	M. Seabrook
SF11-05	592559	5455661	Similar structure as above; mineralized carbonate (magnetite)	M. Seabrook
SF11-06	592783	5455669	Float sample of iron oxide breccia with some quartz vein material	M. Seabrook
SF11-07	591433	5454634	4 cm wide magnetite vein in quartzite-conglomerate, cemented by siderite	M. Seabrook
SF11-08	590436	5454457	bull quartz vein with magnetite, minor sericite and chlorite, and alteration halos of hematite and manganese	M. Seabrook
SF11-09	590436	5454457	Same structure as above; sample of thin extensional quartz veins along margins	M. Seabrook
SF11-10	590435	545462	Quartz vein with siderite and coarse biotite in altered siltstone	M. Seabrook
SF-34	595570	5454367	phyllitic siltstone with disseminated chalcopryrite concentrated on bedding planes; malachite and manganese staining on fractures	T. Hoy
SF-52	595819	5454566	granular quartzite, siderite and silica alteration, with malachite staining on fractures and goethite blebs (after chalcopryrite?)	T. Hoy

**APPENDIX 5:  
ANALYSES OF SAMPLES**

---

**Notes:**

1. All samples collected by M. Seabrook and T. Höy, 2011
2. Descriptions and locations of samples are given in Appendix 4
3. All analyses are by Acme Analytical Laboratories  
1020 Cordova Street East  
Vancouver, B.C., V6A 4A3
4. Methodology
  - 1DX3: 36 element geochemical aqua regia digest, 30 gram sample, ICP-MS analysis
  - see [www.acmelab.com](http://www.acmelab.com) for complete methodology



1020 Cordova St. East Vancouver BC V6A 4A3 Canada

Acme Analytical Laboratories (Vancouver) Ltd.

www.acmelab.com

Client: Kootenay Gold Inc.
Suite 920 - 1055 W. Hastings St.
Vancouver BC V6E 2E9 Canada

Submitted By: Email Distribution List - Soil & Rock
Receiving Lab: Canada-Vancouver
Received: September 28, 2011
Report Date: November 05, 2011
Page: 1 of 2

CERTIFICATE OF ANALYSIS

VAN11005052.1

CLIENT JOB INFORMATION

Project: SILVER FOX
Shipment ID:
P.O. Number
Number of Samples: 9

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Table with 6 columns: Method Code, Number of Samples, Code Description, Test Wgt (g), Report Status, Lab. Contains two rows of sample preparation data.

SAMPLE DISPOSAL

DISP-RJT Dispose of Pulp After 90 days
Dispose of Reject After 90 days

ADDITIONAL COMMENTS

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Kootenay Gold Inc.
Suite 920 - 1055 W. Hastings St.
Vancouver BC V6E 2E9
Canada

CC:



This report supersedes all previous preliminary and final reports with this file number dated prior to the date on this certificate. Signature indicates final approval; preliminary reports are unsigned and should be used for reference only. All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of analysis only. Results apply to samples as submitted. \*\* asterisk indicates that an analytical result could not be provided due to unusually high levels of interference from other elements.



Acme Analytical Laboratories (Vancouver) Ltd.  
 1020 Cordova St. East Vancouver BC V6A 4A3 Canada  
 Phone (604) 253-3158 Fax (604) 253-1716

www.acmelab.com

Client: **Kootenay Gold Inc.**  
 Suite 920 - 1055 W. Hastings St.  
 Vancouver BC V6E 2E9 Canada

Project: SILVER FOX  
 Report Date: November 05, 2011

Page: 2 of 2 Part 1

CERTIFICATE OF ANALYSIS

VAN11005052.1

Method	WGHT	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30
Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	
Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	
MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.1	0.5	0.1	1	0.1	0.1	0.1	2	0.01	
SF11-04	Rock	0.85	2.7	145.9	3.5	95	<0.1	22.4	19.3	9424	15.00	3.7	13.1	<0.5	2.7	52	0.2	1.5	0.3	27	0.03
SF11-05	Rock	0.94	6.7	339.1	5.2	34	0.3	10.6	16.3	>10000	23.65	5.7	8.0	5.4	1.0	51	0.4	9.3	0.3	<2	0.02
SF11-06	Rock	0.77	0.8	105.4	3.4	66	0.2	13.8	17.9	>10000	17.63	3.8	4.0	2.8	2.3	12	0.2	0.9	0.3	19	0.01
SF11-07	Rock	0.47	0.7	212.0	19.7	29	0.3	4.9	5.5	2335	9.27	2.8	2.6	1.2	2.5	3	0.1	1.5	0.5	15	<0.01
SF11-08	Rock	0.58	0.2	2.7	9.3	15	<0.1	2.3	1.5	270	0.51	<0.5	<0.1	<0.5	0.3	4	0.1	<0.1	<0.1	<2	0.01
SF11-09	Rock	1.05	0.2	28.0	19.6	66	<0.1	12.5	7.9	674	2.00	0.5	1.2	<0.5	12.6	18	0.3	0.3	0.7	18	0.20
SF11-10	Rock	0.63	0.2	2.0	11.7	7	<0.1	2.1	20.4	70	1.09	1.5	0.4	<0.5	5.2	11	<0.1	0.6	<0.1	5	0.08
SF-34	Rock	0.61	14.3	1035	285.6	4	2.9	2.7	4.8	363	0.51	1.1	5.8	16.9	7.5	6	<0.1	1.0	2.1	<2	0.28
SF-52	Rock	0.65	0.5	1270	7.1	42	9.9	0.5	1.1	479	0.23	17.9	0.6	14.8	1.6	38	3.2	72.3	0.5	<2	0.48



Acme Analytical Laboratories (Vancouver) Ltd.  
 1020 Cordova St. East Vancouver BC V6A 4A3 Canada  
 Phone (604) 253-3158 Fax (604) 253-1716

www.acmelab.com

Client: **Kootenay Gold Inc.**  
 Suite 920 - 1055 W. Hastings St.  
 Vancouver BC V6E 2E9 Canada

Project: SILVER FOX  
 Report Date: November 05, 2011

Page: 2 of 2 Part 2

CERTIFICATE OF ANALYSIS

VAN11005052.1

Method	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2	
SF11-04	Rock	0.080	11	17	0.43	155	0.007	<1	2.84	<0.001	0.03	<0.1	0.05	3.8	<0.1	<0.05	9	<0.5	<0.2
SF11-05	Rock	0.073	8	4	0.03	254	0.003	<1	0.47	0.002	<0.01	<0.1	0.18	1.1	<0.1	<0.05	4	<0.5	<0.2
SF11-06	Rock	0.056	9	13	0.13	138	0.005	<1	1.33	<0.001	0.02	<0.1	0.06	2.3	<0.1	<0.05	5	<0.5	<0.2
SF11-07	Rock	0.151	7	9	0.02	44	0.006	<1	0.37	0.002	0.08	<0.1	0.07	1.0	0.1	<0.05	2	<0.5	<0.2
SF11-08	Rock	0.003	1	3	0.11	16	0.004	<1	0.21	0.004	0.01	<0.1	<0.01	0.2	<0.1	<0.05	<1	<0.5	<0.2
SF11-09	Rock	0.065	28	17	0.61	121	0.073	<1	1.46	0.036	0.37	0.1	<0.01	2.4	0.2	<0.05	5	<0.5	<0.2
SF11-10	Rock	0.005	19	6	0.03	124	0.071	<1	0.25	0.042	0.08	0.4	<0.01	0.9	<0.1	<0.05	<1	<0.5	<0.2
SF-34	Rock	0.046	17	1	0.02	51	<0.001	1	0.30	0.006	0.15	<0.1	0.12	0.4	<0.1	<0.05	<1	<0.5	0.4
SF-52	Rock	0.012	7	<1	<0.01	1849	<0.001	1	0.08	0.002	0.05	<0.1	7.48	0.2	<0.1	<0.05	<1	<0.5	<0.2



Acme Analytical Laboratories (Vancouver) Ltd.

1020 Cordova St. East Vancouver BC V6A 4A3 Canada

Phone (604) 253-3158 Fax (604) 253-1716

www.acmelab.com

Client: **Kootenay Gold Inc.**  
Suite 920 - 1055 W. Hastings St.  
Vancouver BC V6E 2E9 Canada

Project: SILVER FOX

Report Date: November 05, 2011

Page: 1 of 1 Part 1

# QUALITY CONTROL REPORT

VAN11005052.1

Method	WGHT	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	
Analyte	Wgt	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	
Unit	kg	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	
MDL	0.01	0.1	0.1	0.1	1	0.1	0.1	0.1	1	0.01	0.5	0.1	0.5	0.1	1	0.1	0.1	0.1	2	0.01	
Reference Materials																					
STD DS8	Standard	12.1	103.7	119.5	290	1.6	36.2	7.2	579	2.36	22.3	2.8	103.8	6.8	57	2.1	4.9	6.0	39	0.67	
STD DS8	Standard	13.8	112.0	125.6	316	1.8	37.1	7.5	603	2.47	24.6	2.9	112.9	7.1	69	2.5	5.4	6.5	41	0.72	
STD DS8 Expected		13.44	110	123	312	1.69	38.1	7.5	615	2.46	26	2.8	107	6.89	67.7	2.38	5.7	6.67	41.1	0.7	
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	
BLK	Blank	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.01	<0.5	<0.1	<0.5	<0.1	<1	<0.1	<0.1	<0.1	<2	<0.01	
Prep Wash																					
G1	Prep Blank	<0.01	<0.1	2.6	2.9	46	<0.1	2.5	4.0	560	1.84	<0.5	1.5	<0.5	5.4	59	<0.1	<0.1	<0.1	37	0.48
G1	Prep Blank	<0.01	0.1	2.7	2.9	47	<0.1	2.5	4.1	564	1.96	<0.5	1.5	<0.5	5.5	59	<0.1	<0.1	<0.1	38	0.49





Acme Analytical Laboratories (Vancouver) Ltd.

1020 Cordova St. East Vancouver BC V6A 4A3 Canada

Phone (604) 253-3158 Fax (604) 253-1716

www.acmelab.com

**Client:** Kootenay Gold Inc.  
Suite 920 - 1055 W. Hastings St.  
Vancouver BC V6E 2E9 Canada

**Project:** SILVER FOX

**Report Date:** November 05, 2011

**Page:** 1 of 1 Part 2

QUALITY CONTROL REPORT

VAN11005052.1

Method	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30	1DX30
Analyte	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Se	Te	
Unit	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	
MDL	0.001	1	1	0.01	1	0.001	1	0.01	0.001	0.01	0.1	0.01	0.1	0.1	0.05	1	0.5	0.2	
Reference Materials																			
STD DS8	Standard	0.072	13	109	0.59	245	0.101	3	0.89	0.081	0.40	2.8	0.19	1.9	5.2	0.16	4	5.1	4.5
STD DS8	Standard	0.080	16	118	0.62	275	0.123	2	0.95	0.089	0.41	2.9	0.20	2.2	5.3	0.16	5	4.3	4.6
STD DS8 Expected		0.08	14.6	115	0.6045	279	0.113	2.6	0.93	0.0883	0.41	3	0.192	2.3	5.4	0.1679	4.7	5.23	5
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
BLK	Blank	<0.001	<1	<1	<0.01	<1	<0.001	<1	<0.01	<0.001	<0.01	<0.1	<0.01	<0.1	<0.1	<0.05	<1	<0.5	<0.2
Prep Wash																			
G1	Prep Blank	0.076	12	5	0.52	144	0.121	<1	0.93	0.079	0.47	<0.1	<0.01	2.0	0.3	<0.05	4	<0.5	<0.2
G1	Prep Blank	0.080	13	6	0.54	150	0.124	<1	0.95	0.083	0.49	<0.1	<0.01	2.0	0.3	<0.05	5	<0.5	<0.2



486000 488000 490000 492000 494000 496000 498000 500000 502000 504000 506000

5460000 5458000 5456000 5454000 5452000 5450000 5448000 5446000 5444000 5442000 5440000 5438000 5436000 5434000 5432000 5430000 5428000

5460000 5458000 5456000 5454000 5452000 5450000 5448000 5446000 5444000 5442000 5440000 5438000 5436000 5434000 5432000 5430000



# Geology of the Silver Fox Property, Purcell Mountains

Scale: 1:50,000



Kilometres  
UTM ZONE 11  
NAD 1983

### GEOLOGY FROM:

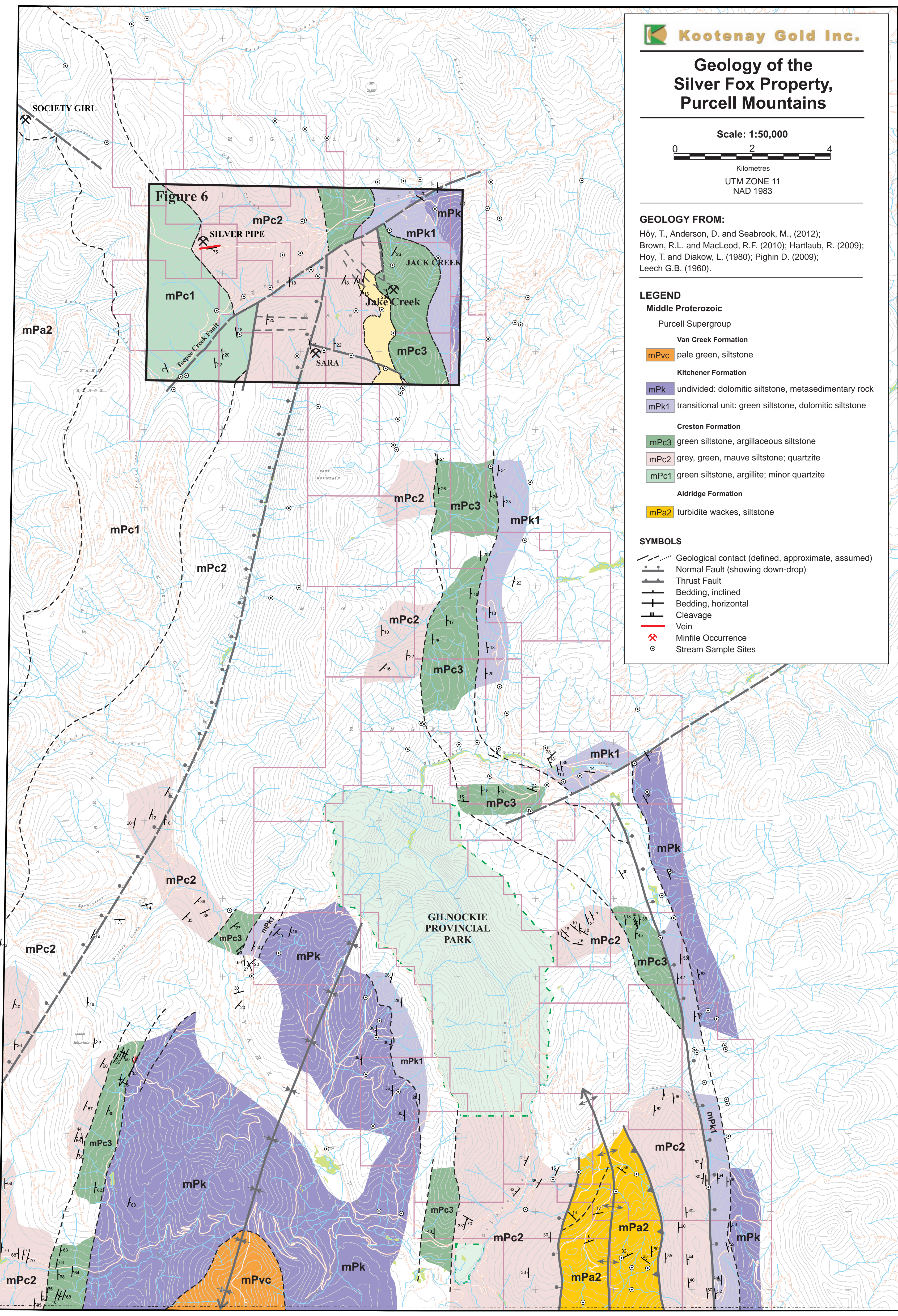
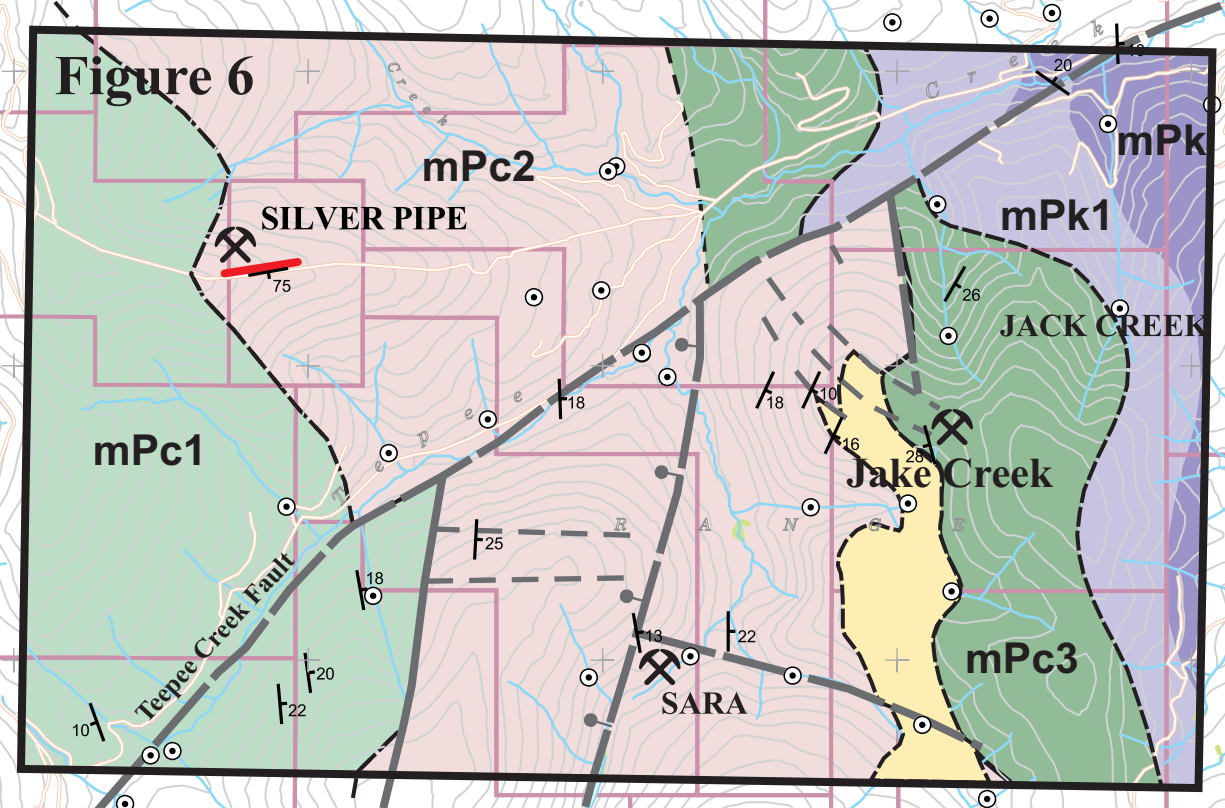
Höy, T., Anderson, D. and Seabrook, M., (2012);  
Brown, R.L. and MacLeod, R.F. (2010); Hartlaub, R. (2009);  
Hoy, T. and Diakow, L. (1980); Pighin D. (2009);  
Leech G.B. (1960).

### LEGEND

- Middle Proterozoic**
- Purcell Supergroup**
- Van Creek Formation**
    - mPvc pale green, siltstone
  - Kitchener Formation**
    - mPk undivided: dolomitic siltstone, metasedimentary rock
    - mPk1 transitional unit: green siltstone, dolomitic siltstone
  - Creston Formation**
    - mPc3 green siltstone, argillaceous siltstone
    - mPc2 grey, green, mauve siltstone; quartzite
    - mPc1 green siltstone, argillite; minor quartzite
  - Aldridge Formation**
    - mPa2 turbidite wackes, siltstone

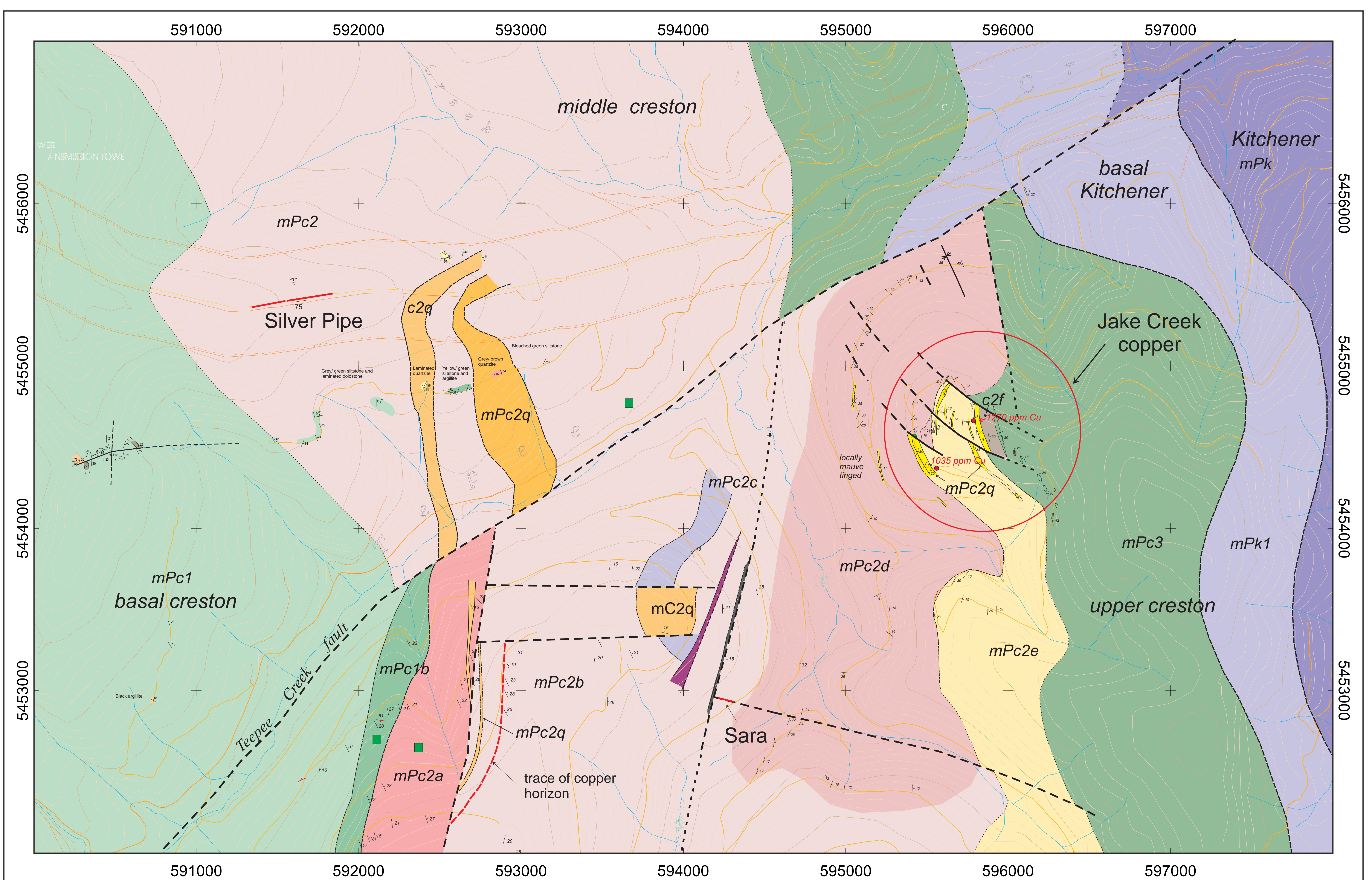
### SYMBOLS

- Geological contact (defined, approximate, assumed)
- Normal Fault (showing down-drop)
- Thrust Fault
- Bedding, inclined
- Bedding, horizontal
- Cleavage
- Vein
- Minifile Occurrence
- Stream Sample Sites



486000 488000 490000 492000 494000 496000 498000 500000 502000 504000 506000





**LEGEND**

- Tertiary?**  
 dyke
- Middle Proterozoic: Purcell Supergroup**  
**Kitchener Formation**  
 mPk grey dolomitic, limey siltstone, dolomite  
 mPk1 dolomitic siltstones, green siltites
- Creston Formation**  
 mPc3 upper Creston: green siltstones  
 mPc2 middle Creston Formation  
 mPc2q quartzite  
 mPc2f argillaceous siltstone  
 mPc2e quartzite; siltstone  
 mPc2d siltstone, argillaceous; locally mauve  
 mPc2c argillite  
 mPc2b siltstone; light green to grey  
 mPc2a silty argillite, siltstone  
 mPc1 argillite, argillaceous siltstone

**SYMBOLS**

- Contact: defined, approx., assumed  
 - - - Fault: defined, approx., assumed  
 — Bedding  
 ↗ Foliation; cleavage  
 ] Joint/ Fracture  
 — Vein (quartz; minor carbonate, sulphide)  
 ○ Rock sample (M. Seabrook, T. Hoy)  
 ● Cu > 1000 ppm  
 ■ Copper showing

**Sources of data**

- Höy, T., and Seabrook, M., 2011 mapping  
 Brown, R.L. and MacLeod, R.F. (2010)  
 Hartlaub, R. (2009)  
 Hoy, T. and Diakow, L. (1980).  
 Pighin D. (2009)



**Kootenay Gold Inc.**

**Silver Fox (North)  
 Purcell Mountains**

NAD 1983  
 UTM ZONE 11

0 1 km

*Figure 6a*

Reference: Hoy, T., Anderson, D.A. and Seabrook (2012):  
 B.C. Ministry of Energy and Mines, Assessment report