

BC Geological Survey
Assessment Report
30702

**GEOCHEMICAL REPORT
(ROCK AND SOIL)**

ROD-STIR PROPERTY

Clinton Mining Division, British Columbia

Latitude 51°07' / Longitude 122°15'

UTM NAD 83 5663066 mN and 552495 mE.

NTS: Map 0920/1

Prepared by

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February 28, 2009

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ROD-STIR PROJECT
Location Map
 Fig. 1

A.) PROPERTY DESCRIPTION

1) Location

The Rod-Stir Property is located, on the west side of the Fraser River, 92 kilometers north of the community of Lillooet. The property is centered at 51°07' north latitude and 122°15' west longitude, UTM NAD 83 5663066 mN and 552495 mE. (Figure 1)

2) Access and Physiography

The property is accessed from Lillooet via the West Pavilion Forestry road on the west side of the Fraser River. At kilometre 92 on the West Pavilion road a secondary mining road takes off to the west and at 9 kilometres bisects the property. The closest helicopter service is located in Lillooet.

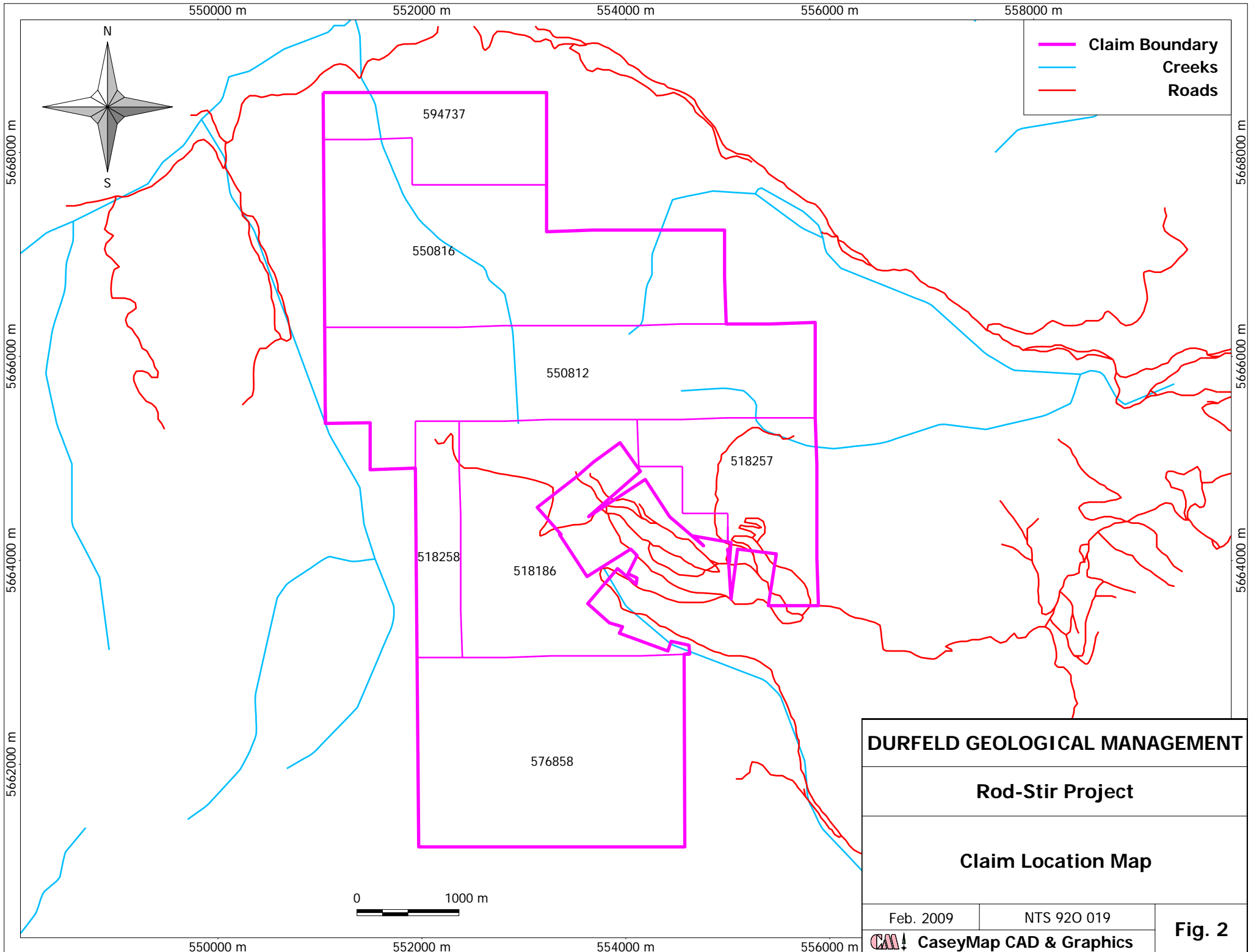
The property is on the Fraser Plateau in south central British Columbia. The topography of the property is dominated by the east-west trending 9-mile ridge with elevations ranging from 1600 to 2010 metres above sea level.

3) Claims

The Rod-Stir Property consists of 9 contiguous tenures covering some 2494.4 hectares of mineral tenure in the Clinton Mining Division. (Figure 2)

The following table summarizes the current claim status. The Good To Date reflects work that was filed as SOW Exploration and Development Work / Expiry Date Change Event Number (4252440). The claims are held in the name of JM (Mel) Stewart (FMC # 125752).

Tenure Number	Claim Name	Owner	Tenure Type	Map Number	Good To Date	Area (ha)
518186	DAVE	125752 (100%)	Mineral	0920	2010/mar/31	486.8
518257	DAVE 2	125752 (100%)	Mineral	0920	2010/mar/31	223.1
518258	DAVE 3	125752 (100%)	Mineral	0920	2010/mar/31	101.4
538455	GAP 1	125752 (100%)	Mineral	0920	2010/mar/31	40.6
538457	GAP 2	125752 (100%)	Mineral	0920	2010/mar/31	20.3
550812	JOAN	125752 (100%)	Mineral	0920	2010/mar/31	466.4
550816	DEB	125752 (100%)	Mineral	0920	2010/mar/31	506.8
576858	DADE	125752 (100%)	Mineral	0920	2010/mar/31	487.0
594737	DD	125752 (100%)	Mineral	0920	2009/nov/22	162.1
				Total Area		2494.4



4.) Regional History (Stirrup / Roderick Creek)

Mineral claims owned by H.V. Warren and his associates, located on the ridge between the headwaters of Stirrup Creek and Roderick Creek in the Clinton Mining Division, have been investigated for the source of several thousand ounces of placer gold. Warren reports that placer gold was discovered at Stirrup Creek during World War 1 and over the following 25 years, some 3000 to 5000 ounces of gold were produced. Placer operations have continued intermittently since that time.

The 1933 B.C. Minister of Mines Report notes that a 100 foot cross-cut with an 80 foot winze and a connecting 12 foot drift were completed that year. A number of veins and lenses of stibnite were located in 1942.

Rio Tinto Explorations Ltd. optioned the property in 1969. That company carried out geochemical surveys and drilled nine percussion holes aggregating 494 metres (1622 feet). A piece of float found on the ridge saddle at this time assayed 0.66 opt gold. Placer Development Ltd. optioned the property in 1973 and undertook geochemical and trenching programs. Then Chevron optioned the property in 1974. Chevron also conducted geochemical and geological programs, trenching, and in 1975 drilled two 300 foot vertical core holes. Asarco made detailed examinations of the claims in 1980, and Placer Development are reported to have conducted a limited VLF-EM test in 1984. Interest in the property was again revived in 1986 when the high grade Blackdome gold deposit located about 30 kilometers north of Stirrup Creek was brought into production.

Chevron Canada Resources Limited again optioned the property in 1987 along with the adjacent Brent property to the west. The properties were acquired with a view to re-evaluating a number of known gold showings within the Warren claims, and in particular to determine whether smaller, structurally controlled deposits may be present. In June and July of 1987, a number of old trenches were cleaned, a limited amount of new trenching was completed and sampled. In October, four shallow drill tests were completed.

5.) 2008 Exploration Program

The 2008 exploration program focused on prospecting, mapping and sampling in the western property area where the 2007 program had confirmed and expanded the historic gold and arsenic in soil anomalies. The results of the 2008 program are documented in this report.

B.) GEOLOGY

C.) Regional & Property Geology

The claim area lies near the eastern margin of the Jackass Mountain Group, an early Cretaceous sedimentary unit. The assemblage is reported to be about 5300 metres thick consisting of volcanic-rich lithic waxes, shales and polymict boulder conglomerates that are dominantly of marine origin.

The claims lie close to the Trettin'D ' Fault, one of the major northwesterly splays of the Fraser River Fault Zone. Movement along the Fraser Fault and the Yalakom Fault further to the west has dissected the Jackass Group into several parts and has also resulted in a number of cross faults trending east to northeast between the two. A number of easterly trending parallel faults have been noted in the upper part of Stirrup Creek.

1) Property Geology

Much of the area of the 2007 and 2008 programs is lower on the hillside and covered by overburden. The contacts on the geology map were defined by mapping rubble in soil pits and outcrop where observed. The geology is given as figure 3 and as the backdrop for all of the geochemical results.

Within the claims and adjoining area to the northwest and south east, the sedimentary rocks dominated by sandstone (2), conglomerate (2a) and lesser siltstone and argillite (3) have been intruded by dykes and sills of granodiorite, grading from feldspar (4a) to quartz-feldspar porphyry (4b). Due to limited exposure, the nature of the intrusives are not defined but are believed to be part of the sill and Dyke system present at Stirrup Creek. These intrusives are locally mineralized with fine pyrite / arsenopyrite. The mineralized intrusions form prominent gossans on the alpine open slopes.

2) Mineralization

In the central claim area, small stibnite occurrences have been partly exposed in bulldozer trenches. The stibnite occurs as narrow seams near the contact of a quartz-feldspar porphyry sill that seems to trend west to northwest in an argillaceous siltstone host. Nearby rocks are locally highly altered, cream-coloured and clay rich with dark brown fractures. This setting and the geochemistry are similar to other occurrences on the adjacent Stirrup Creek property.

Two small hand pits reveal grey stibnite bearing quartz veins and stringers in a gossanous quartz-feldspar porphyry. The extent or trend of this zone is presently uncertain. Poorly defined quartz veins assaying up to 200 ppb gold are present near the northwest margin of the Shine claim. This material appears to mark a contact between quartz-feldspar porphyry and Jackass sandstone.

3) Alteration

During the 2007 sampling program a series of float of altered sediment and intrusive rocks were selected and sent to Kim Heberlein in Vancouver for PIMA Spectral Analysis. The results of her work showed an alteration suite of – phlogopite, illite/sericite, smectite, chlorite (Fe-Mg), weak kaolinite, probable epidote. A comparison of this alteration assemblage to the ‘Temperature Stability of Hydrothermal Minerals in the Epithermal Environment’ shows the alteration minerals defining a zone with potential for epithermal ore deposition.

C.) GEOCHEMISTRY

1) Sample Collection

During the 2008 program 22 soil and 13 rock samples were collected for analysis. Soil and rock sample sites were located using the Garmin GPS and recorded the UTM location in NAD 83.

Soil sampling was conducted with a grub hoe digging pits to a minimum of .7 metres to expose the soil profile. This profile showed a light grey volcanic ash that was up to .6 metres thick overlying a well developed rusty yellow to brown B-horizon soil. Samples were taken from the B-horizon, rock fragments removed and the sand silt and clay material placed in a pre-numbered kraft sample bag. The sample number and location were entered in an XL data base to later be merged with the analytical results.

Rock samples were collected as random chips from outcrop and subcrop and placed with pre-numbered assay tags in plastic sample bags. The sample number and location were entered in an XL data base to be merged with the analytical results.

All equipment was cleaned between samples to avoid contamination.

2) Sample Analysis

Samples were shipped to Assayers Canada for analysis for fire geochem gold and 34 element ICP. The labs detailed analytical procedures are given as Appendix III. The results were received in XL format and are tabulated as Appendix II.

D.) RESULTS

The soil and rock results were merged with the field data and are given as appendix I.

The 2008 rock sample locations are shown with the property geology as figure 3. The results for gold arsenic and antimony were merged with the previous data and plotted as figures 4, 5 and 6.

The 2008 soil sample locations are shown with the geology as figure 7 and the 2008 soil results are plotted with the soil results from previous surveys with geology for gold, arsenic and antimony as figures 8, 9 and 10.

The historic and current rock sampling has shown background gold values. A single sample of quartz-stibnite-arsenopyrite vein from the 2007 survey returned 586 ppm arsenic, 59 ppm mercury and greater than 10,000 ppm antimony. The high arsenic-stibnite suggest epithermal potential at depth. Otherwise the rock sampling has shown low arsenic and antimony values. The 2008 soil sampling continued to fill in and confirm the historic western anomaly which is developing as a strong gold-arsenic-antimony in soil anomaly that is open to the north and west. A prospecting traverse in the northern claim area showed a single gossanous soil sample strongly anomalous in gold (149 ppb) and arsenic (149 ppm) anomaly. This area warrants a lot more prospecting and sampling.

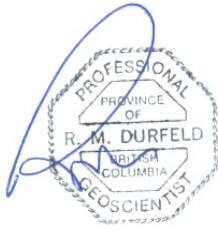
Ongoing work should continue to focus on expanding the western and northwestern anomalies. As some of these anomalies trend off the current claims to the west, any open ground to the west should be acquired to cover anomaly extensions. The logging road up Roderick Creek provides excellent access to the north and northwest area.

E.) COST STATEMENT

ROD-STIR PROJECT 2008

Description	Unit	Amount	Rate	Total	
May 24 to 29, 2008					
Geologist:					
R.M. Durfeld, P. Geo.	May 27 to 28	day	1.5	700	\$ 1,050.00
Assistants:					
Guido Durfeld	May 27 to 28	day	1.5	275	\$ 412.50
Andrew Penner	May 27 to 28	day	1.5	275	\$ 412.50
David Stewart	May 25 to 29	day	4	275	\$ 1,100.00
Prospector					
J.M. Stewart	May 24 to 29	day	3	350	\$ 1,050.00
Field Equipment					
	May 24 to 29	day	3	60	\$ 180.00
Satellite Telephone					
	May 24 - 29	week	1	195	\$ 195.00
ATV & Trailer Rentals					
2 units	May 24 - 29	day	6	80	\$ 480.00
Room & Board					
5 men		manday	11	80	\$ 880.00
Geochemical Analysis					
Invoice # 75171 att'd--13 rock, 16 soil					\$ 760.10
OCTOBER 10 TO 16 2008					
Assistants:					
David Stewart		day	3	275	\$ 825.00
Prospector					
J.M. Stewart		day	3	350	\$ 1,050.00
Field Equipment					
		day	3	60	\$ 180.00
Satellite Telephone					
		week	1	195	\$ 195.00
ATV & Trailer Rentals					
2 units		day	6	80	\$ 480.00
Room & Board					
2 men		manday	6	80	\$ 480.00
Geochemical Analysis					
Invoice # 76930					\$ 404.15
Report Preparation					\$ 1,500.00
Sub-Total					\$ 11,634.25
Transport @ 20% of total cost					\$ 2,326.85
Total Project Cost					\$ 13,961.10

Dated at Williams Lake, British Columbia
this 28th day of February 2009.



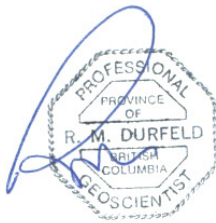
R.M. Durfeld, B.Sc., P.Geo.

F.) STATEMENT OF QUALIFICATIONS

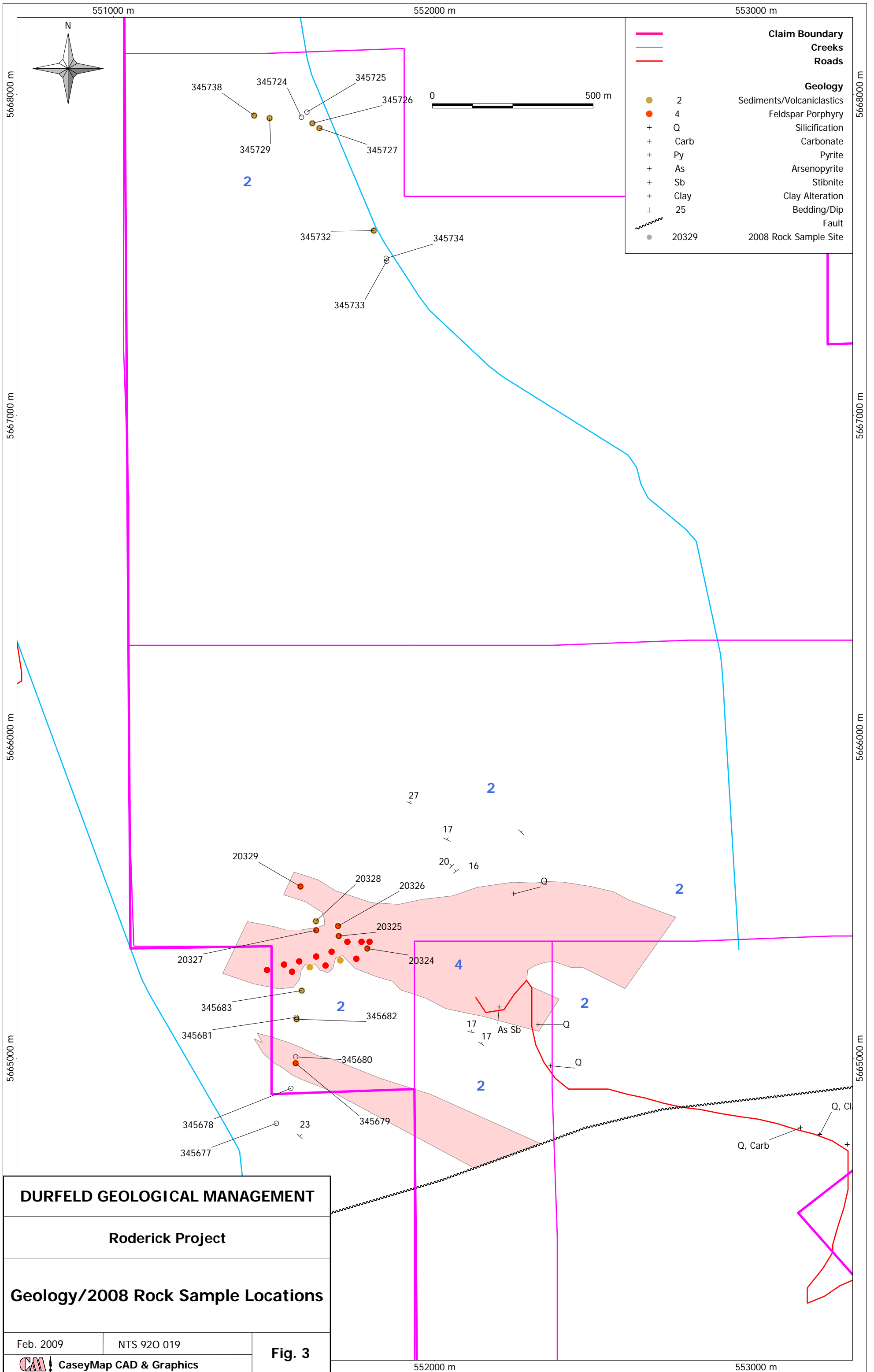
I, Rudolf M. Durfeld, do hereby certify that:

- 1.) I am a geologist with offices at 2029 South Lakeside Drive, Williams Lake, BC.
- 2.) I am a graduate of the University of British Columbia, B.Sc. Geology 1972, and have practiced my profession with various mining and/or exploration companies and as an independent geological consultant since graduation.
- 3.) I am a member Canadian Institute of Mining and Metallurgy.
- 4.) That I am registered as a Professional Geoscientist by the Association of Engineers and Geoscientists of B.C. (No. 18241).
- 5.) That this report is based on:
 - a.) my project supervision and geological mapping on my May 25th, 2008 visit to the Rod-Stir mineral property.
 - b.) compilation of the 2008 and previous exploration data.
 - b.) my personal knowledge of the property area and a review of available government maps and assessment reports.

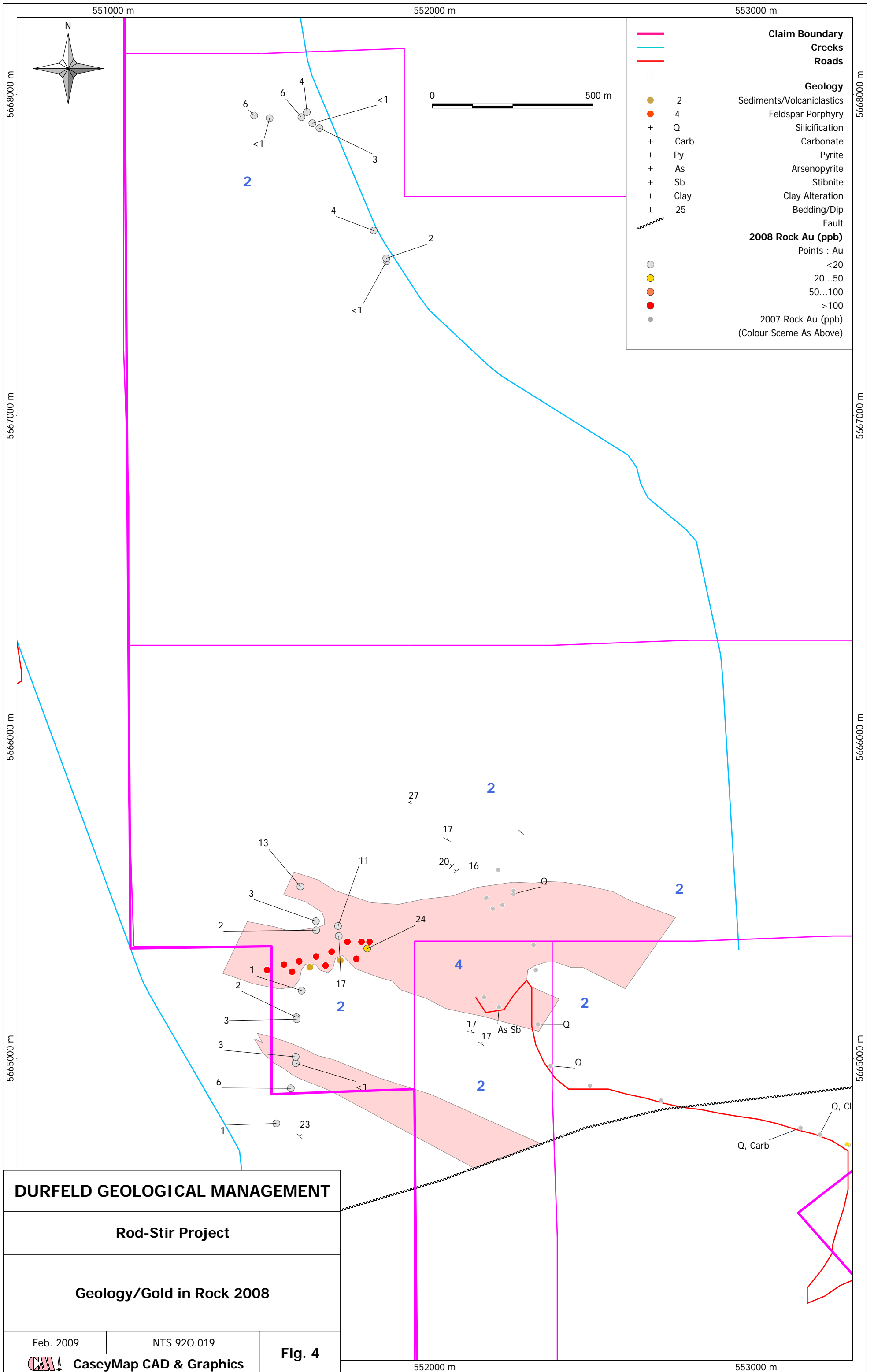
Dated at Williams Lake, British Columbia
this 28th day of February 2009.



R.M. DURFELD, B.SC., P.GEO.



DURFELD GEOLOGICAL MANAGEMENT		
Roderick Project		
Geology/2008 Rock Sample Locations		
Feb. 2009	NTS 92O 019	Fig. 3
CaseyMap CAD & Graphics		



DURFELD GEOLOGICAL MANAGEMENT

Rod-Stir Project

Geology/Gold in Rock 2008

Feb. 2009

NTS 920 019

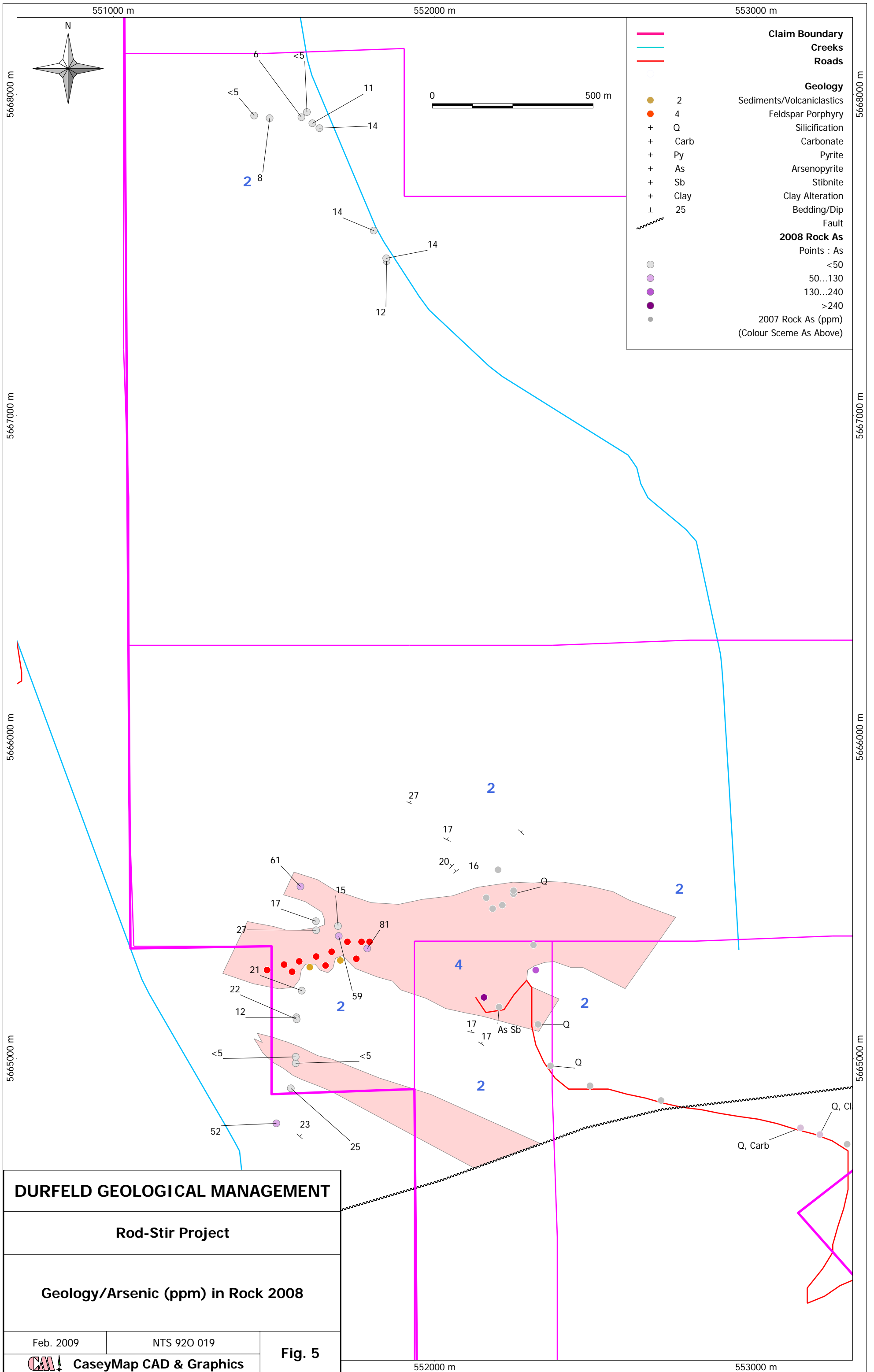
Fig. 4



CaseyMap CAD & Graphics

552000 m

553000 m



DURFELD GEOLOGICAL MANAGEMENT

Rod-Stir Project

Geology/Arsenic (ppm) in Rock 2008

Feb. 2009

NTS 920 019

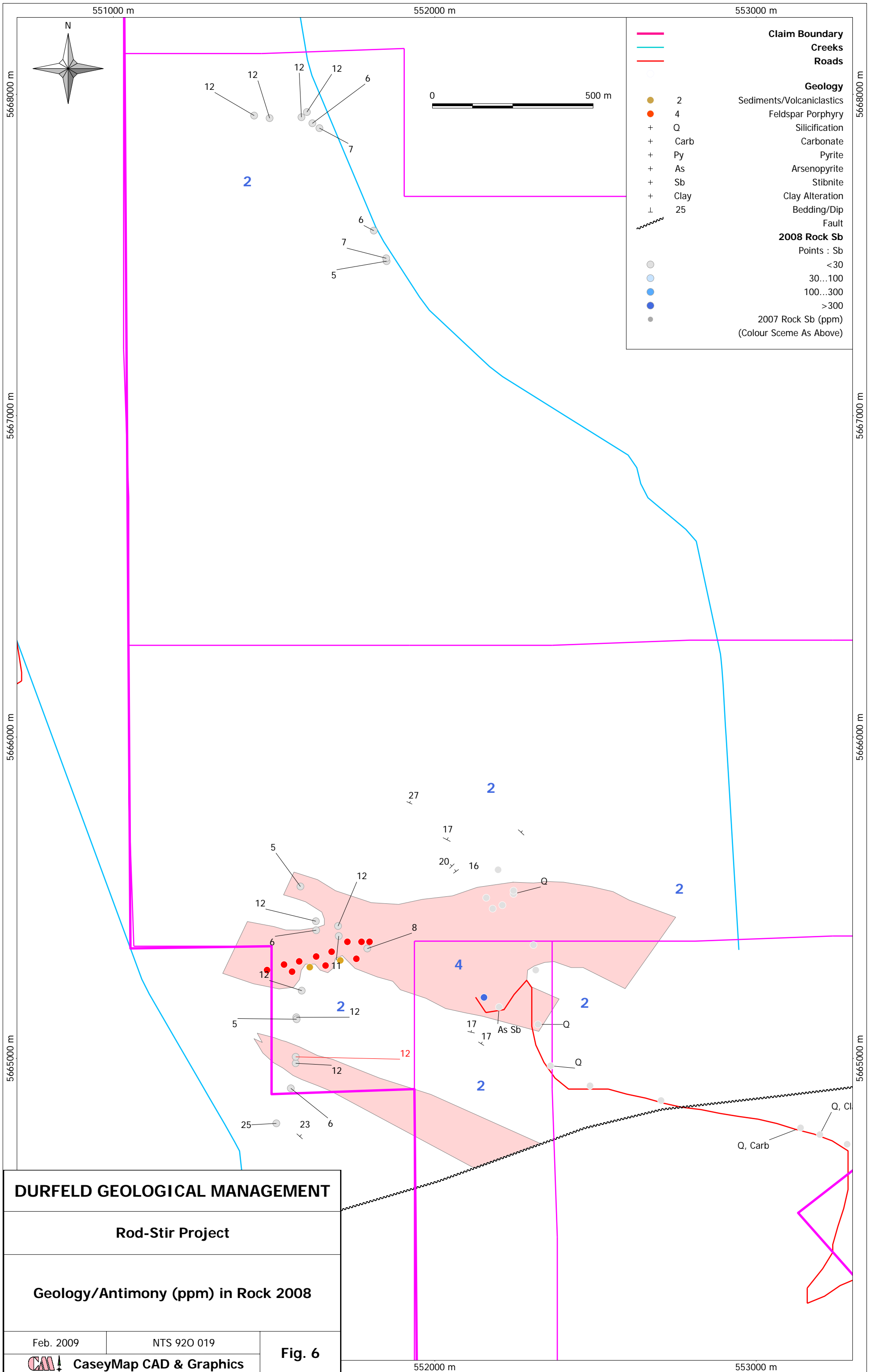
Fig. 5

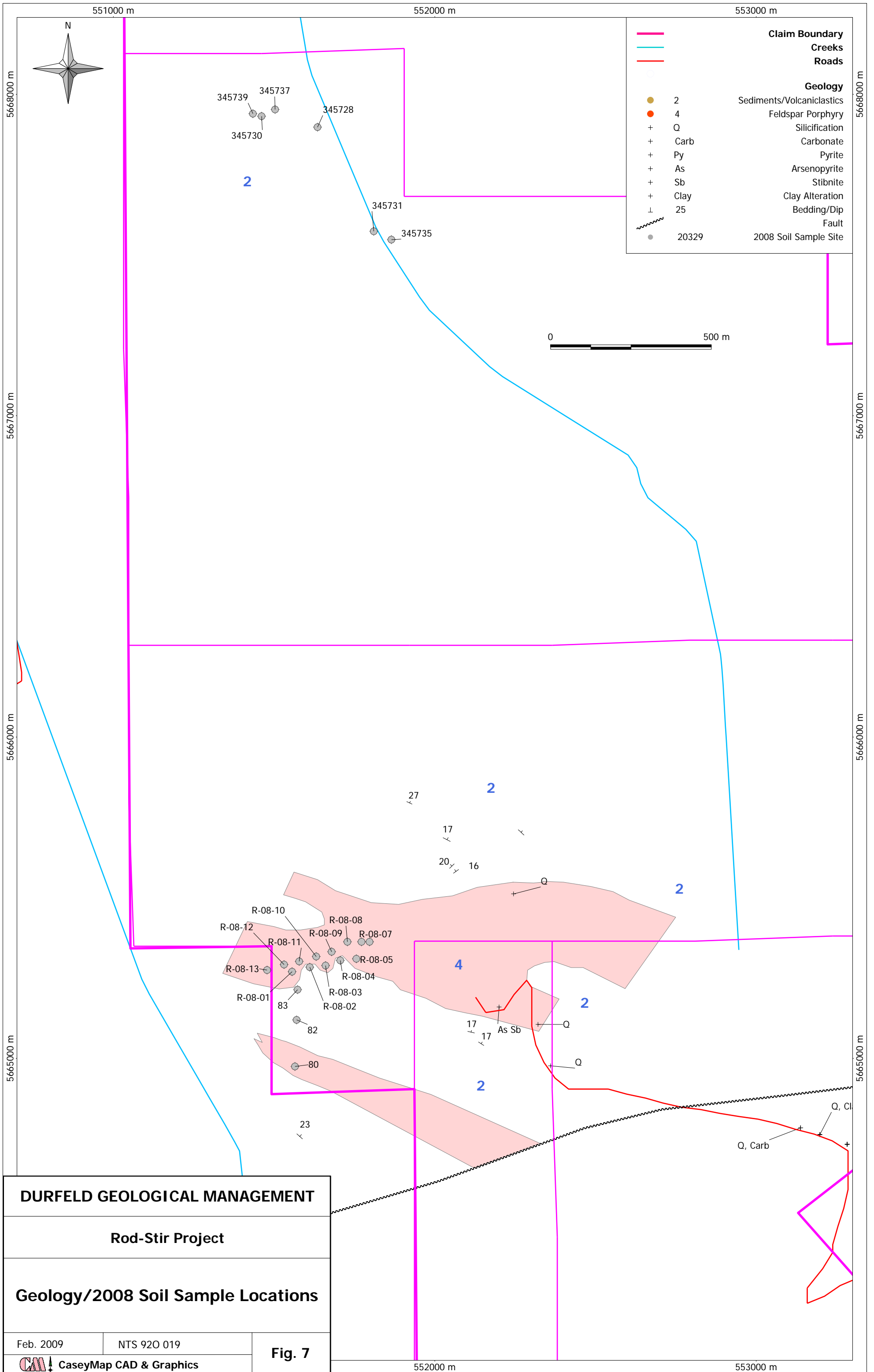


CaseyMap CAD & Graphics

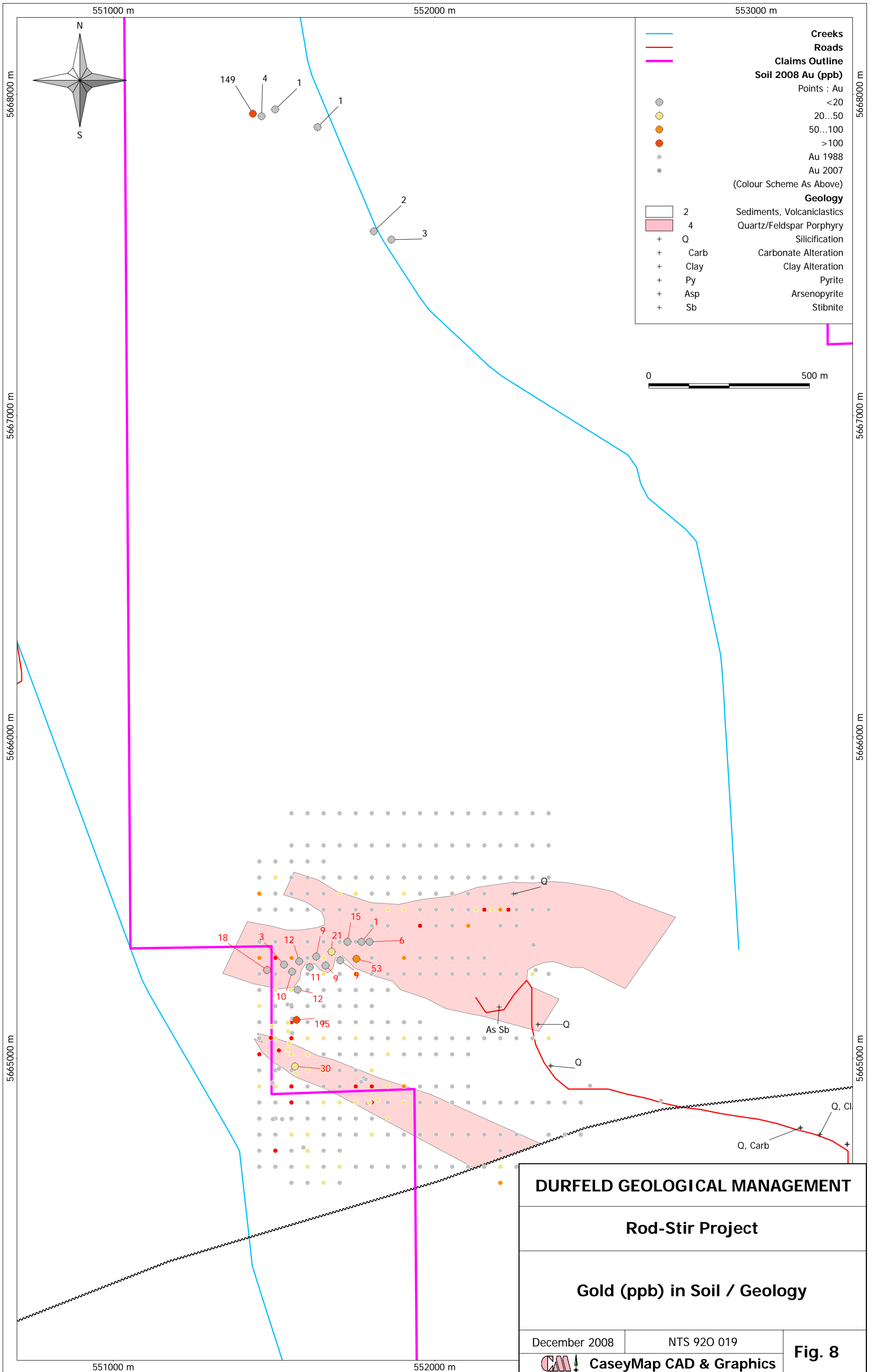
552000 m

553000 m





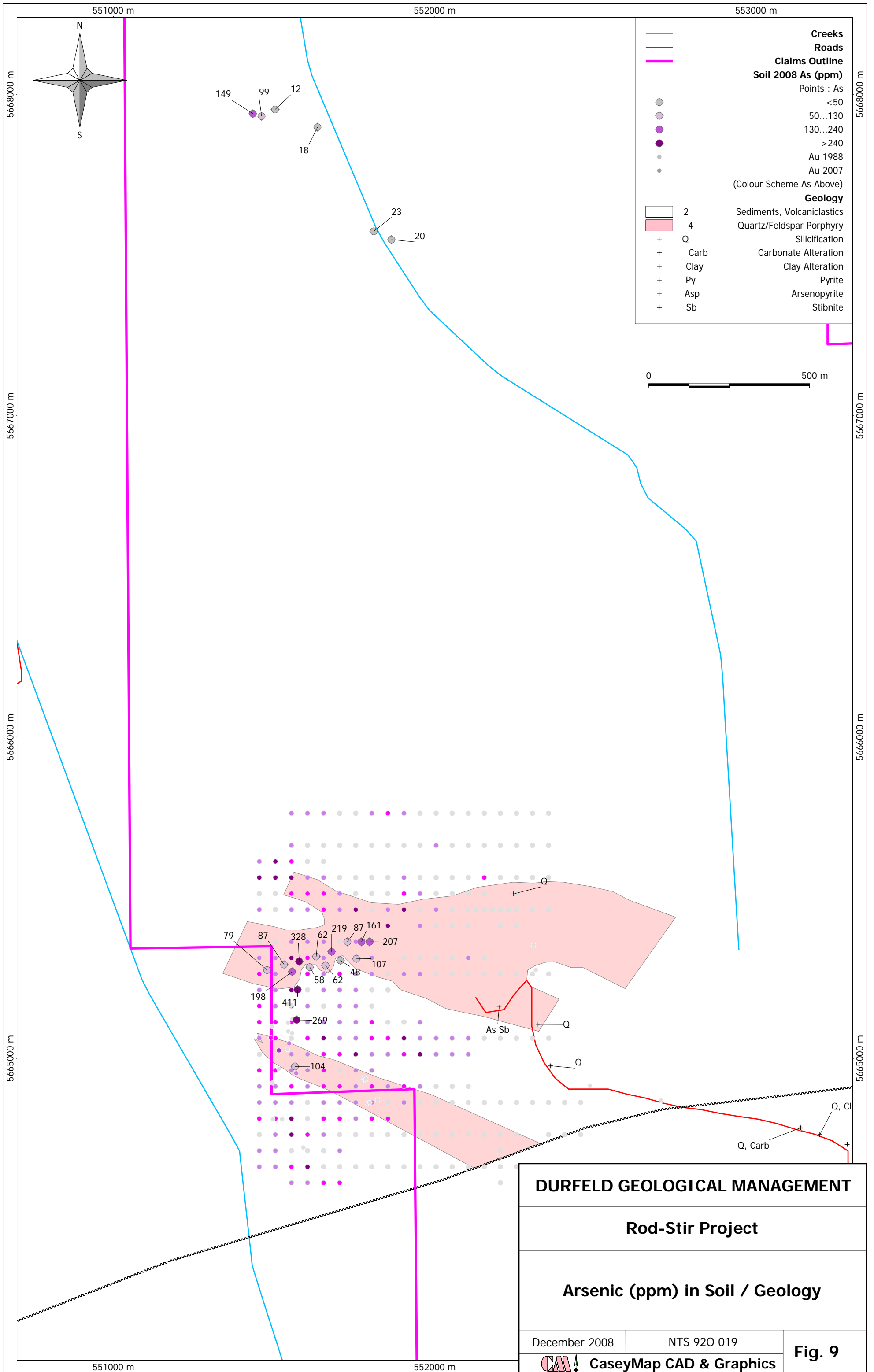
DURFELD GEOLOGICAL MANAGEMENT		
Rod-Stir Project		
Geology/2008 Soil Sample Locations		
Feb. 2009	NTS 920 019	Fig. 7
CaseyMap CAD & Graphics		



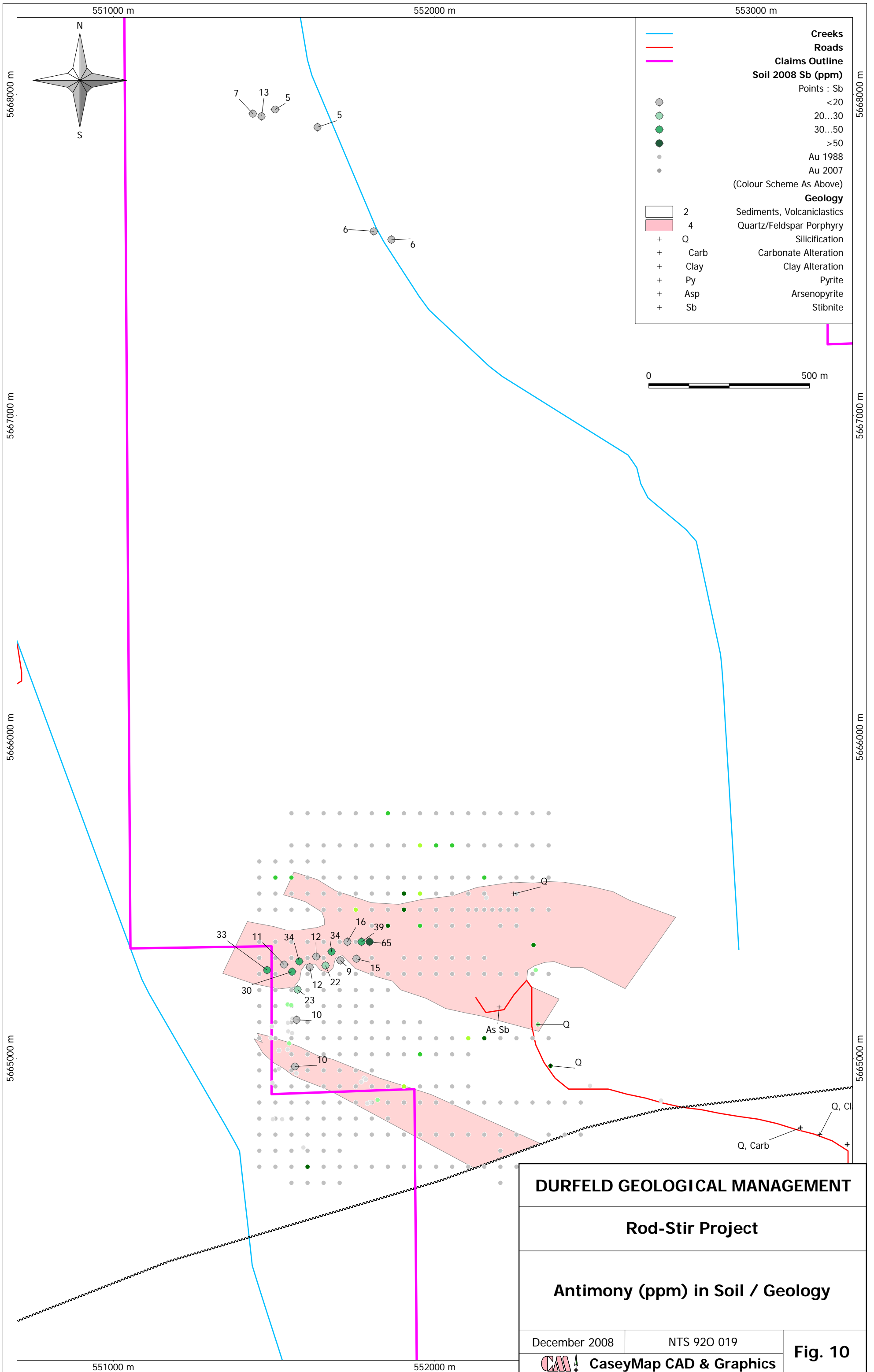
DURFELD GEOLOGICAL MANAGEMENT


Rod-Stir Project

Gold (ppb) in Soil / Geology



DURFELD GEOLOGICAL MANAGEMENT		
Rod-Stir Project		
Arsenic (ppm) in Soil / Geology		
December 2008	NTS 920 019	Fig. 9
CaseyMap CAD & Graphics		



DURFELD GEOLOGICAL MANAGEMENT		
Rod-Stir Project		
Antimony (ppm) in Soil / Geology		
December 2008	NTS 920 019	Fig. 10
 CaseyMap CAD & Graphics		

APPENDICES

APPENDIX I

-2008 Rock Sample Location / Description

-2008 Soil Sample Location / Description

ROD-STIR 2008 ROCK SAMPLE RESULTS																																									
Sample No.	Easting	Northing	Elevation	Code	Description	Geochem		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP								
						Certificate Number	Au ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm	Zr ppm
20324	551790	5665342	1661	QFPHbl	high level silicious fine grey	8V2091RJ	24	4.9	1.1	81	199	<0.5	7	0.36	1	5	107	57	2.35	<1	0.12	<10	0.61	258	<2	0.06	5	707	49	0.07	8	3	24	<5	0.09	<10	<10	53	<10	39	10
20325	551701	5665381	1670	QFPHbl	very silicious	8V2091RJ	17	10.7	1.24	59	252	<0.5	7	0.36	1	5	95	109	2.4	<1	0.14	<10	0.77	237	2	0.05	7	779	58	0.08	11	4	24	<5	0.1	<10	<10	66	<10	107	9
20326	551699	5665412	1678	FSPy	Silicious FP with fine pyrite	8V2091RJ	11	0.6	1.3	15	199	<0.5	<5	0.68	<1	5	82	202	1.38	<1	0.1	<10	0.32	137	4	0.11	5	710	4	0.21	<5	2	54	<5	0.1	<10	<10	43	<10	12	9
20327	551631	5665399	1675	Sd/CngA	Fine altered felsic intrusive minor py, close to contact	8V2091RJ	2	0.5	2.38	27	213	<0.5	8	1.02	<1	12	137	99	3.08	<1	0.35	<10	1.36	402	4	0.18	68	884	<2	0.08	6	5	74	<5	0.23	<10	<10	91	<10	36	7
20328	551630	5665427	1677	SSArgHfls	Fine siltstone to argillite, hornfelsed and silicious	8V2091RJ	3	0.2	3.91	17	153	0.5	<5	2.82	<1	7	126	69	1.25	<1	0.31	<10	0.57	233	2	0.46	59	1549	<2	0.09	<5	1	255	<5	0.17	<10	<10	38	<10	10	4
20329	551582	5665535	1672	FPHbl	Feldspar hornblende	8V2091RJ	13	0.5	1.42	61	128	<0.5	5	0.35	1	5	68	458	2.44	<1	0.18	<10	0.67	171	5	0.06	4	707	<2	0.04	5	4	31	<5	0.12	<10	<10	69	<10	27	10
345677	551507	5664798	1563	Shem	Banded Silicious-Hematitic	8V2091RJ	1	0.3	0.44	52	4651	<0.5	28	12.13	1	<1	27	19	4.66	<1	0.04	<10	4.29	1387	<2	0.01	24	326	6	0.27	25	4	418	<5	<0.01	<10	<10	27	<10	23	3
345678	551552	5664907	1603	QPHem		8V2091RJ	6	<0.2	0.92	25	228	<0.5	8	1.15	1	5	61	9	2.46	<1	0.2	13	0.44	1146	2	0.02	6	866	6	0.02	6	3	20	<5	<0.01	<10	13	40	<10	59	9
345679	551567	5664985	1612	QFHBLP	Silicious Feldspar Porphyry	8V2091RJ	<1	<0.2	1.55	<5	2213	<0.5	15	3.01	1	7	38	13	3.43	<1	0.16	<10	1.14	1084	<2	0.04	7	994	<2	0.12	<5	4	144	<5	0.01	<10	<10	73	<10	74	3
345680	551567	5665005	1622	QFP Py		8V2091RJ	3	0.2	1.1	<5	77	<0.5	6	0.35	<1	5	73	272	2.08	<1	0.1	<10	0.63	215	10	0.05	3	632	<2	0.02	<5	3	14	<5	0.13	<10	<10	61	<10	32	14
345681	551569	5665128	1634	QFPHbl		8V2091RJ	2	<0.2	0.86	12	42	<0.5	<5	0.46	<1	4	69	85	1.66	<1	0.06	<10	0.39	187	2	0.07	4	722	<2	0.02	<5	2	35	<5	0.1	<10	<10	46	<10	14	9
345682	551570	5665122	1631	Sd Py	Sandstone	8V2091RJ	3	<0.2	2.39	22	90	<0.5	9	0.78	1	12	86	145	3.56	<1	0.48	<10	1.2	438	3	0.15	14	741	<2	0.15	5	6	178	<5	0.24	<10	<10	100	<10	62	6
345683	551586	5665211	1619	Sd	Immature	8V2091RJ	1	<0.2	1.54	21	222	<0.5	5	0.66	1	13	89	45	3.13	<1	0.76	<10	0.95	420	<2	0.1	26	641	<2	0.01	<5	4	23	<5	0.29	<10	<10	105	<10	53	5
345724	551585	5667929	1523	Rock	fractured rock outcrop on steep sidehill o/c's	8V3765RG	6	<0.2	2.14	6	95	<0.5	5	2.3	1	16	58	26	4.11	<1	0.17	11	1.62	808	<2	0.04	15	873	20	<0.01	<5	6	51	<5	0.01	<10	<10	70	<10	85	4
345725	551602	5667945	1525	Rock	same as above	8V3765RG	4	<0.2	2.05	<5	74	<0.5	5	2.27	1	16	60	25	4.27	<1	0.11	11	1.76	840	<2	0.04	15	912	17	0.01	<5	9	43	<5	0.01	<10	<10	85	<10	95	4
345726	551619	5667910	1523	SdA	Bedrock --Sandstone	8V3765RG	<1	<0.2	2.2	11	149	<0.5	<5	2.05	1	22	52	28	4.32	1	0.06	<10	1.94	788	<2	0.04	15	863	25	0.02	6	12	86	<5	0.29	<10	<10	124	<10	80	30
345727	551641	5667895	1526	Rock	same as above	8V3765RG	3	<0.2	2.12	14	110	<0.5	<5	1.17	1	23	54	26	4.27	1	0.04	10	2.06	880	<2	0.04	20	902	25	0.01	7	13	69	<5	0.36	<10	<10	124	<10	82	32
345729	551486	5667926	1525	SdA	Bedrock --Sandstone	8V3765RG	<1	<0.2	1.87	8	95	<0.5	<5	2.19	1	18	54	26	4.24	<1	0.06	11	2.01	1039	<2	0.04	22	845	21	0.01	<5	11	60	<5	0.03	<10	<10	101	<10	84	6
345732	551810	5667576		Rock	Rock in sno gully .4m deep- Sandstone-Tr Pyrite	8V3765RG	4	<0.2	2.99	14	57	<0.5	<5	2.01	1	26	58	29	4.62	<1	0.04	<10	2.29	1008	<2	0.03	15	952	29	<0.01	6	11	82	<5	0.38	<10	<10	126	<10	90	42
345733	551850	5667481		Rock	rock in talus slope 60m wide, 70m high	8V3765RG	<1	<0.2	2.59	12	31	<0.5	<5	2.23	1	20	42	2	3.53	<1	0.06	<10	1.42	605	<2	0.03	11	867	28	<0.01	5	7	84	<5	0.31	<10	<10	101	<10	78	36
345734	551849	5667490		Rock	rock in talus slope 60m wide, 70m high	8V3765RG	2	<0.2	3	14	35	<0.5	<5	2.42	1	24	53	27	4.14	<1	0.04	<10	1.96	808	<2	0.03	12	967	30	<0.01	7	9	54	<5	0.36	<10	<10	117	<10	87	42
345738	551438	5667934		Sdgos	Rock-.6m deep Sandstone,yellow	8V3765RG	6	<0.2	0.65	<5	113	<0.5	<5	0.23	1	13	36	15	3.21	<1	0.17	<10	0.15	906	<2	0.02	33	656	14	<0.01	<5	5	10	<5	<0.01	<10	<10	28	<10	63	4

APPENDIX II

2008 Analytical Results
- Rock Sample Analyses
- Soil Sample Analyses

Certificate	Sample	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP
Number	Name	Ag	Al	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Tl	U	V	W	Zn	Zr		
		ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	
8V2091RJ	20324	4.9	1.1	81	199	<0.5	7	0.36	1	5	107	57	2.35	<1	0.12	<10	0.61	258	<2	0.06	5	707	49	0.07	8	3	24	<5	0.09	<10	<10	53	<10	39	10		
8V2091RJ	20325	10.7	1.24	59	252	<0.5	7	0.36	1	5	95	109	2.4	<1	0.14	<10	0.77	237	2	0.05	7	779	58	0.08	11	4	24	<5	0.1	<10	<10	66	<10	107	9		
8V2091RJ	20326	0.6	1.3	15	199	<0.5	<5	0.68	<1	5	82	202	1.38	<1	0.1	<10	0.32	137	4	0.11	5	710	4	0.21	<5	2	54	<5	0.1	<10	<10	43	<10	12	9		
8V2091RJ	20327	0.5	2.38	27	213	<0.5	8	1.02	<1	12	137	99	3.08	<1	0.35	<10	1.36	402	4	0.18	68	884	<2	0.08	6	5	74	<5	0.23	<10	<10	91	<10	36	7		
8V2091RJ	20328	0.2	3.91	17	153	0.5	<5	2.82	<1	7	126	69	1.25	<1	0.31	<10	0.57	233	2	0.46	59	1549	<2	0.09	<5	1	255	<5	0.17	<10	<10	38	<10	10	4		
8V2091RJ	20329	0.5	1.42	61	128	<0.5	5	0.35	1	5	68	458	2.44	<1	0.18	<10	0.67	171	5	0.06	4	707	<2	0.04	5	4	31	<5	0.12	<10	<10	69	<10	27	10		
8V2091RJ	345677	0.3	0.44	52	4651	<0.5	28	12.13	1	<1	27	19	4.66	<1	0.04	<10	4.29	1387	<2	0.01	24	326	6	0.27	25	4	418	<5	<0.01	<10	<10	27	<10	23	3		
8V2091RJ	345678	<0.2	0.92	25	228	<0.5	8	1.15	1	5	61	9	2.46	<1	0.2	13	0.44	1146	2	0.02	6	866	6	0.02	6	3	20	<5	<0.01	<10	13	40	<10	59	9		
8V2091RJ	345679	<0.2	1.55	<5	2213	<0.5	15	3.01	1	7	38	13	3.43	<1	0.16	<10	1.14	1084	<2	0.04	7	994	<2	0.12	<5	4	144	<5	0.01	<10	<10	73	<10	74	3		
8V2091RJ	345680	0.2	1.1	<5	77	<0.5	6	0.35	<1	5	73	272	2.08	<1	0.1	<10	0.63	215	10	0.05	3	632	<2	0.02	<5	3	14	<5	0.13	<10	<10	61	<10	32	14		
8V2091RJ	345681	<0.2	0.86	12	42	<0.5	<5	0.46	<1	4	69	85	1.66	<1	0.06	<10	0.39	187	2	0.07	4	722	<2	0.02	<5	2	35	<5	0.1	<10	<10	46	<10	14	9		
8V2091RJ	345682	<0.2	2.39	22	90	<0.5	9	0.78	1	12	86	145	3.56	<1	0.48	<10	1.2	438	3	0.15	14	741	<2	0.15	5	6	178	<5	0.24	<10	<10	100	<10	62	6		
8V2091RJ	345683	<0.2	1.54	21	222	<0.5	5	0.66	1	13	89	45	3.13	<1	0.76	<10	0.95	420	<2	0.1	26	641	<2	0.01	<5	4	23	<5	0.29	<10	<10	105	<10	53	5		

Certificate Number	Sample Name	Geochem	Geochem
		Au ppb	Au-Check ppb
8V2091RG	20324	24	23
8V2091RG	20325	17	
8V2091RG	20326	11	
8V2091RG	20327	2	
8V2091RG	20328	3	
8V2091RG	20329	13	
8V2091RG	345677	1	
8V2091RG	345678	6	
8V2091RG	345679	<1	
8V2091RG	345680	3	
8V2091RG	345681	2	
8V2091RG	345682	3	
8V2091RG	345683	1	
8V2091RG	*0218	866	
8V2091RG	*BLANK	<1	

Assayers Canada

8282 Sherbrooke St., Vancouver, B.C., V5X 4R6

Tel: (604) 327-3436 Fax: (604) 327-3423

Report No : **8V3765RJ**

Date : Nov-06-08

JM Stewart Surveys

Attention: J.M Stewart

Project: ROD-STIR-08

Sample type: Rocks

Multi-Element ICP-AES Analysis

Aqua Regia Digestion

Sample Number	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm	Zr ppm
345724	<0.2	2.14	6	95	<0.5	5	2.30	1	16	58	26	4.11	<1	0.17	11	1.62	808	<2	0.04	15	873	20	<0.01	<5	6	51	<5	0.01	<10	<10	70	<10	85	4
345725	<0.2	2.05	<5	74	<0.5	5	2.27	1	16	60	25	4.27	<1	0.11	11	1.76	840	<2	0.04	15	912	17	0.01	<5	9	43	<5	0.01	<10	<10	85	<10	95	4
345726	<0.2	2.20	11	149	<0.5	<5	2.05	1	22	52	28	4.32	1	0.06	<10	1.94	788	<2	0.04	15	863	25	0.02	6	12	86	<5	0.29	<10	<10	124	<10	80	30
345727	<0.2	2.12	14	110	<0.5	<5	1.17	1	23	54	26	4.27	1	0.04	10	2.06	880	<2	0.04	20	902	25	0.01	7	13	69	<5	0.36	<10	<10	124	<10	82	32
345729	<0.2	1.87	8	95	<0.5	<5	2.19	1	18	54	26	4.24	<1	0.06	11	2.01	1039	<2	0.04	22	845	21	0.01	<5	11	60	<5	0.03	<10	<10	101	<10	84	6
345732	<0.2	2.99	14	57	<0.5	<5	2.01	1	26	58	29	4.62	<1	0.04	<10	2.29	1008	<2	0.03	15	952	29	<0.01	6	11	82	<5	0.38	<10	<10	126	<10	90	42
345733	<0.2	2.59	12	31	<0.5	<5	2.23	1	20	42	2	3.53	<1	0.06	<10	1.42	605	<2	0.03	11	867	28	<0.01	5	7	84	<5	0.31	<10	<10	101	<10	78	36
345734	<0.2	3.00	14	35	<0.5	<5	2.42	1	24	53	27	4.14	<1	0.04	<10	1.96	808	<2	0.03	12	967	30	<0.01	7	9	54	<5	0.36	<10	<10	117	<10	87	42
345738	<0.2	0.65	<5	113	<0.5	<5	0.23	1	13	36	15	3.21	<1	0.17	<10	0.15	906	<2	0.02	33	656	14	<0.01	<5	5	10	<5	<0.01	<10	<10	28	<10	63	4

A .5 gm sample is digested with 5 ml 3:1 HCl/HNO3 at 95°C for 2 hours and diluted to 25ml.

Quality Assaying for over 25 Years

Geochemical Analysis Certificate

8V-3765-RG1

Company: **JM Stewart Surveys**
Project: **ROD-STIR-08**
Attn: **J.M Stewart**

Nov-06-08

We hereby certify the following geochemical analysis of 9 rocks samples submitted Oct-22-08

Sample Name	Au ppb	Au-Check ppb
345724	6	5
345725	4	
345726	<1	
345727	3	
345729	<1	
345732	4	
345733	<1	
345734	2	
345738	6	
*0211	2236	
*BLANK	<1	

Certified by _____

		Geochem	Geochem
Certificate	Sample	Au	Au-Check
Number	Name	ppb	ppb
8V2091SG	R-08-01	10	8
8V2091SG	R-08-02	11	
8V2091SG	R-08-03	9	
8V2091SG	R-08-04	9	
8V2091SG	R-08-05	53	
8V2091SG	R-08-06	6	
8V2091SG	R-08-07	<1	
8V2091SG	R-08-08	15	
8V2091SG	R-08-09	21	
8V2091SG	R-08-10	9	
8V2091SG	R-08-11	12	
8V2091SG	R-08-12	3	
8V2091SG	R-08-13	18	
8V2091SG	80	30	
8V2091SG	82	195	
8V2091SG	83	12	
8V2091SG	*0218	856	
8V2091SG	*BLANK	<1	

Assayers Canada

8282 Sherbrooke St., Vancouver, B.C., V5X 4R6

Tel: (604) 327-3436 Fax: (604) 327-3423

Report No : 8V3765SJ

Date : Nov-06-08

JM Steward Surveys

Attention: J.M Stewart

Project: RQD-STIR-08

Sample type: Soils

Multi-Element ICP-AES Analysis

Aqua Regia Digestion

Sample Number	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm	Zr ppm
345728	<0.2	2.63	18	248	<0.5	<5	0.81	1	23	85	35	4.34	<1	0.14	12	1.47	712	<2	0.03	34	764	32	0.01	5	12	53	<5	0.21	<10	<10	114	<10	72	21
345730	<0.2	0.86	99	136	0.6	5	0.29	3	19	34	34	4.28	<1	0.22	11	0.20	846	<2	0.01	29	464	16	0.01	13	12	44	<5	<0.01	<10	<10	28	<10	68	3
345731	<0.2	2.79	23	134	<0.5	<5	1.56	1	21	75	35	4.09	<1	0.12	<10	1.36	827	<2	0.04	32	784	30	0.02	6	9	76	<5	0.21	<10	<10	102	<10	74	12
345735	<0.2	2.43	20	116	<0.5	<5	1.00	1	18	87	30	4.32	<1	0.12	<10	1.49	822	<2	0.04	35	974	26	<0.01	6	8	59	<5	0.14	<10	<10	84	<10	83	17
345737	<0.2	2.33	12	107	<0.5	<5	0.86	1	18	67	22	3.85	<1	0.11	<10	1.31	570	<2	0.04	26	971	26	<0.01	5	8	72	<5	0.19	<10	<10	93	<10	68	19
345739	3.9	1.12	149	174	<0.5	<5	1.84	26	14	84	80	4.40	<1	0.30	10	0.92	1464	16	0.03	41	915	342	0.90	7	4	99	<5	0.08	<10	<10	48	38	2218	5

A .5 gm sample is digested with 5 ml 3:1 HCl/HNO3 at 95°C for 2 hours and diluted to 25ml.

Quality Assaying for over 25 Years

Geochemical Analysis Certificate

8V-3765-SG1

Company: **JM Steward Surveys**
Project: **RQD-STIR-08**
Attn: **J.M Stewart**

Nov-06-08

We *hereby certify* the following geochemical analysis of 6 soils samples submitted Oct-22-08

Sample Name	Au ppb
345728	1
345730	4
345731	2
345735	3
345737	<1
345739	149
*0211	2218
*BLANK	<1

Certified by _____

APPENDIX III ANALYTICAL PROCEDURES (Rock and Soil)

Assayers Canada Services Explained

Sample Preparation

Sample preparation procedures are normally fairly straightforward, and can be summarized as:

- If a sample is wet, it will normally need to be dried
- Large samples must be split, often several times, to provide a portion small enough to be handled by the analytical equipment. The size of the final sample is a function of the element being analysed and the analytical method being employed.
- The size of particles within the sample must be reduced so that the elements of interest can be properly liberated from the rest of the rock.

Sample Drying

At Assayers Canada, samples of rock, stream sediments and soils are all dried in an oven at about 60 degrees Celsius. It is possible to dry the samples more quickly (i.e. at a higher temperature), but certain volatile elements (notably Hg) can be lost at higher temperatures.

Sample Size and Particle Size Reduction

The optimum mix of crushing, pulverising and splitting samples to achieve a sample that is small enough and fine grained enough to be analysed, while still giving a fair representation of the element concentrations in the original sample, is a topic about which textbooks have been written, and is a much discussed problem. While the theory and mathematics of the discussion is too complex to be included in this web site, it is advisable that all geologists at least have a cursory understanding of the issues involved here, particularly if the project in question includes very coarse grained ore minerals.

In general, the coarser and less homogenous the distribution of the ore minerals, the finer a specimen should be crushed (or pulverised) before a portion of it is split off for analysis or further sample preparation. Ideally, the entire sample (say 10kg of drill core) would be pulverised to -150 mesh before splitting off a portion for analysis. The trouble with this is that it takes a long time to pulverise a large sample, and hence this would be a very costly solution to the problem.

At Assayers Canada, soil and stream sediment samples (where elements of interest are found in the fine fraction) are passed through an -80 mesh sieve, and the fine fraction is then split (if necessary) and pulverised.

Rock and drill core samples, on the other hand, are first crushed with a jaw crusher and the put through a secondary crusher so that it is 60% less than 10 mesh in size. The sample is then mixed, and a 250-gram sub sample split is taken. The sub sample is then pulverised in a ring pulverizer until 90% of the sample is less than 150 mesh, at which time it is ready for analysis.

Note that coarse gold does not pulverise well, but rather tends to become smeared along the plates of the pulverizer. If a sample is known to contain coarse gold, therefore, it should be sieved after it is pulverised to remove the coarse gold particles. The entire coarse fraction is then analysed, as is a split of the fine fraction. The two assays are then combined to give the total gold content of the original sample.

Assayers Canada Services Explained

Gold and Precious Metal Analysis by Fire Assay

Fire Assaying, a technique that has been around for centuries, is still the most generally accepted method of analysis for gold, and platinum group elements.

Though a number of variations are available (depending on the size of sample assayed and the method of final reading of the metal concentration), the basic technique in Fire Assaying for gold involves adding flux (which includes lead) and silver to the pulverised sample and fusing (melting) it. The extra silver acts as a collector of the gold, and, in very low-grade samples, ensures that at the end of the fusing there is enough precious metal to be easily handled.



At the end of the fusion process, the resultant molten material is poured into a metal mould and allowed to cool into a lead button (which contains the precious metals) at the bottom, overlain by silica glass slag. The slag is chipped off and discarded, and the lead button is subjected to a second process called cupellation, in which the precious metals are separated from the lead.

In cupellation the lead button (containing the gold) is placed into a small porous crucible called a cupel, and heated. The lead then becomes oxidised and is absorbed into the cupel, leaving a small silver/gold bead remaining in the cupel.



It now remains only to separate the silver from the gold. To do this, the bead is placed in a test tube and nitric acid is added, which, when the test tube is put in a hot water bath, dissolves the silver, leaving a small particle of pure gold.

If the particle of gold is large enough, it is usually weighed to determine the original grade of the sample. This is called a gravimetric finish to the fire assay. For lower grade samples with very small and difficult to handle gold particles the gold is dissolved in hydrochloric acid and the gold concentration is measured using AAS.

While Fire Assaying is normally done on a 1 Assay Tonne (roughly 30 gram) split of the pulverised material, a slight cost saving is to be found in selecting a smaller (15-gram) sample size. On the other hand, high-grade samples, for which there must be a gravimetric finish, are slightly more expensive than those that are read on the AAS.



In the analysis of platinum group elements, roughly the same procedure is followed, but the final element readings are normally done using ICP.

Assayers Canada Services Explained

Trace Level Geochemistry

There are three basic options available for analysing exploration samples for geochemical levels of most elements normally of interest to the exploration geologist. Geochemical samples (i.e. those not *normally* expected to have ore grade concentrations of critical elements) can be analysed either individually by a variety of traditional wet chemical techniques, or by multi-element ICP, or by Neutron Activation Analysis.

1. Traditional Wet Geochemistry

A wide variety of techniques are employed in traditional geochemical analysis, depending on the element being analysed.

Traditional geochemical analysis basically involves getting a sample into solution, and then using an appropriate method to read the element concentration in the solution. The sample is put into solution by dissolution with mineral acids. Depending on the element being analysed a fusion process may precede this. The type of acid used in the dissolving process is again dependent on the element being assayed. The solutions are then read by AAS, ICP or occasionally some other method.

2. ICP-AES Multi-Element Analysis

The sample is put into a test tube and treated with either Aqua Regia or a cocktail consisting of nitric-perchloric-hydrofluoric-hydrochloric acids, depending on the elements and the detection limits desired.

The beauty of ICP-AES multi-element analysis is the wide range of elements that can be read simultaneously. It is important, however, to be aware of the limitations of the method, the most serious being the fact that, depending on the sample mineralogy, not all elements that are analysed by ICP will invariably dissolve in the Aqua Regia or multi-acid digests. Thus, there is a chance that ICP will underestimate the concentrations of these elements. Another serious limitation to ICP is the fact that there can be interference between different elements. That is, the wavelength of one element's light emission will be close enough to that of another element to cause problems in reading the elements. This is particularly true if one of the elements has a very high concentration.



For the above reasons, ICP is not recommended for analyses that will be used in ore reserve calculations.

3. Instrumental Neutron Activation Analysis (INAA)

INAA has the very real advantage of not requiring the sample to be in solution (thus removing one step in the process, and eliminating any errors associated with that step), and of being able to measure many different elements, including gold, simultaneously.

One disadvantage of INAA is that many elements of interest (including copper and lead) cannot be analysed by the technique. Another disadvantage is the fact that this method requires a nuclear reactor, and there are few of these readily available in Canada.

The sample is prepared as normal and put into vials, which are then put into the reactor. Detection limits can be improved by using larger samples. This method is particularly good for analysis of panned concentrate samples, as it gives gold plus up to 34 different elements from one sample. Using a traditional fire assay (where, for panned concentrates, the entire sample is usually analysed), you can get only the concentration of gold in the sample.

Since Assayers Canada does not have direct access to a nuclear reactor, requests for INAA analysis are contracted out.

COMPARISON OF DIFFERENT TRACE ELEMENT ANALYSIS METHODS

Element	Geochem	ICP AR	ICP MAD	INAA
	(Range)	(Range)	(Range)	(DL)
Antimony	0.2-1000	5-10000	---	0.2
Aluminum	---	0.01-15%*	0.01-15%*	---
Arsenic	1-10000	5-10000	---	2
Barium	5-10000	10-10000*	10-10000*	100
Beryllium	2-1000	5-100*	0.5-100	---
Bismuth	0.1-1000	5-10000	5-10000	---
Boron	1-10000	---	---	---
Bromine	---	---	---	1
Calcium	---	0.01-15%*	0.01-15%	1%
Cadmium	0.1-200	1-100	1-100	---
Cerium	---	---	---	3
Cesium	---	---	---	2
Chlorine	---	---	---	100
Chromium	1-10000	1-10000*	1-10000	10
Cobalt	1-10000	1-10000	1-10000	5
Copper	1-10000	1-10000	1-10000	---
Copper Oxide	1-10000	---	---	---
Europium	---	---	---	0.2
Fluorine	10-10000	---	---	---

Gallium	5-10000 (ICP)	---	---	---
Germanium	5-1000 (ICP)	---	---	---
Gold	---	---	---	5 ppb
Hafnium	---	---	---	1
Iridium	---	---	---	5 ppb
Iron	10-10000	0.01-15% *	0.01-15%	0.02%
Lanthanum	---	---	---	1
Lead	1-10000	2-10000	2-10000	---
Lutetium	---	---	---	0.05
Magnesium	---	0.01-15% *	0.01-15% *	---
Manganese	5-10000	5-10000*	5-10000*	---
Mercury	5-50000 ppb	---	---	1
Molybdenum	1-1000	2-10000	2-10000	5
Neodymium	---	---	---	5
Nickel	1-10000	1-10000	1-10000	50
Niobium	10-10000 (ICP)	---	---	---
Phosphorous	10-10000 (ICP)	10-10000*	10-10000	---
Potassium	---	0.01-10% *	0.01-10%	---
Rubidium	---	---	---	30
Samarium	---	---	---	0.1
Scandium	---	1-10000	---	0.1
Selenium	1-100	---	---	5
Silver	0.1-200	0.2-200	0.2-200	5
Sodium	---	0.01-5% *	0.01-5%	0.05%
Strontium	1-10000 (ICP)	1-10000*	1-10000	0.05%
Tantalum	---	---	---	1
Tellurium	2-100	---	---	---
Terbium	---	---	---	0.5
Thallium	5-10000 ppb	---	---	---
Thorium	2-10000 (ICP)	---	---	0.5
Tin	2-1000	10-1000*	---	0.01%
Titanium	---	0.01-10*	0.01-10%	---
Tungsten	5-1000	10-10000*	10-10000	4
Uranium	---	---	---	0.5
Vanadium	5-10000	1-10000	1-10000	---
Ytterbium	---	---	---	0.2

Yttrium	---	1-10000	---	---
Zinc	1-10000	1-10000	1-10000	50
Zirconium	---	1-10000*	---	---

* Elements thus marked may not dissolve completely, or may experience some losses