NEW ERA Engineering Corporation

Placer Mining and Small Hydro Specialists

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April 23, 2007

Glenna Southwick
Yukon Mine Recorder
Government of Yukon
PO Box 2703
Whitehorse, Yukon
Y1A 2C3

Dear Glenna:

RE: Tintina Mines Canada Ltd. Assessment Reports for Red Mountain Claims

Please find the following attached preliminary reports from Yukon Engineering Services and Hoggan Engineering & Testing (1980) Ltd. regarding a geotechnical program to upgrade the Amoco trail connecting the Red Mountain quartz claims with the Canol Road to an all weather road:

a) Tintina Mines Ltd., Red Mountain Access Conceptual Design Report;

b) Tintina Mines Ltd., Red Mountain Road Geotechnical Investigation Project Description by Eric Nyland of Yukon Engineering Services; and

c) Report No: 8126-1 Geotechnical Investigation Preliminary Report Red Mountain Access Road, 2006-2007 by Hoggan Engineering & Testing (1980) Ltd. and its sampling appendix.

The reports describe:

a) the preliminary work completed in the period November 2005 to October 2006 to assess two potential routes - the existing Amoco Trail and a newer Iron Creek route;

b) the Amoco Trail Geotechnical Program Project Description; and

c) Preliminary results of geotechnical testing.

The geotechnical program for the access road continued past October 30th and the resulting reports and expenses are to be submitted next October 30th (2007) for assessment work for that period. I have included only expenses and reports for the period November 2005 to October 2006. The only access currently is by air or the Amoco Winter Trail. Tintina hopes to make the trail an all weather year-round access road for its Red Mountain Project. The geotechnical program is the first part of that plan. Deadman Creek Enterprises was contracted to open up the road to allow an excavator to come in and take the required samples as well as to allow detailed inspection of the route.

A breakdown of the expenses incurred in the upgrading are outlined below:

AMOCO Access Road Maintenance/ Repair/Geotechnical Study

Account	Date	Company	Amount	Subtotals	Subtotals
Consultants Design, Survey, Geotechnical fees					
	31/07/2006	YES	$ 7,782		
	30/08/2006	YES	$ 27,266		
	30/09/2006	YES	$ 41,102		
	30/09/2006	YES	$ 66,956		
	30/10/2006	YES	$ 19,311		
	30/10/2006	JR Paine	$ 8,130		
				$170,546	**$ 170,546**
Road Upgrade - Heavy Equipment Contractor					
	10/30/2006	Deadman Creek Enter.	$ 23,930		
	10/30/2006	Deadman Creek Enter.	$ 22,260		
	10/30/2006	Deadman Creek Enter.	$ 7,950		
				$ 54,140	**$ 224,686**

Tintina Mines would apply these expenses to the 12 claim groups as appended.

Please call me at 668-3978 if you have any questions

Regards,

_____

Randy Clarkson P.Eng.

Appended Information for the 12 claim groups

The Red Mountain Project consists of 208 contiguous “quartz” claims owned 100% by Tintina Mines Canada Ltd. The claim block surrounds the peak of Red Mountain, drops down to the Boswell River on the north, drops down to Chalco Creek and continues well past on the south. Red Mountain creek forms a rough border to the east (figure 3). The claims were grouped in October 2006 by Kevin Brewer (the former project manager) into 12 groupings plus the SAM 1 and 2 groups, and with 7 claims outside of the group paid in lieu of assessment work. This assessment report is for claims in groups 1 through 12.

Table 1 – Claim Groupings

Group 1 –

Grant Number	Claim	Group		Grant Number	Claim	Group	
Y 99304	BUG	9	1	YC19775	SAM	102	1
Y 99305	BUG	10	1	YC19777	SAM	104	1
YC19757	SAM	84	1	YC19779	SAM	106	1
YC19758	SAM	85	1	YC19784	SAM	113	1
YC19765	SAM	92	1	YC19785	SAM	114	1
YC19767	SAM	94	1	YC19786	SAM	115	1
YC19771	SAM	98	1	YC19814	SAM	155	1
YC19773	SAM	100	1	YC19841	SAM	185	1

Group 2 –

Grant Number	Claim	Group		Grant Number	Claim	Group	
Y 98584	BUG	2	2	YC19769	SAM	96	2
YC19755	SAM	82	2	YC19772	SAM	99	2
YC19756	SAM	83	2	YC19774	SAM	101	2
YC19759	SAM	86	2	YC19776	SAM	103	2
YC19761	SAM	88	2	YC19778	SAM	105	2
YC19763	SAM	90	2	YC19782	SAM	111	2
YC19766	SAM	93	2	YC19783	SAM	112	2
YC19768	SAM	95	2	YC19833	SAM	177	2

Group 3 –

Grant Number	Claim	Group		Grant Number	Claim	Group	
Y 98583	BUG	1	3	Y 99311	BUG	16	3
Y 98585	BUG	3	3	YA22254	GUB	46	3
Y 98586	BUG	4	3	YC19725	SAM	52	3
Y 98587	BUG	5	3	YC19748	SAM	75	3
Y 98588	BUG	6	3	YC19750	SAM	77	3
Y 98590	BUG	8	3	YC19753	SAM	80	3
Y 99309	BUG	14	3	YC19754	SAM	81	3

Group 4 -

Grant Number	Claim		Group
YC19760	SAM	87	4
YC19762	SAM	89	4
YC19764	SAM	91	4
YC19770	SAM	97	4
YC19781	SAM	110	4
YC19821	SAM	165	4
YC19823	SAM	167	4
YC19825	SAM	169	4
YC19831	SAM	175	4
YC19834	SAM	178	4
YC19835	SAM	179	4
YC19836	SAM	180	4
YC19837	SAM	181	4
YC19838	SAM	182	4
YC19839	SAM	183	4
YC19840	SAM	184	4

Group 5 -

Grant Number	Claim		Group
YA22209	GUB	1	5
YA22210	GUB	2	5
YC19696	SAM	21	5
YC19697	SAM	22	5
YC19743	SAM	70	5
YC19745	SAM	72	5
YC19746	SAM	73	5
YC19747	SAM	74	5
YC19799	SAM	134	5
YC19801	SAM	136	5
YC19803	SAM	138	5
YC19805	SAM	140	5
YC19807	SAM	142	5
YC19809	SAM	144	5
YC19811	SAM	146	5
YC19813	SAM	148	5

Group 6 –

Grant Number	Claim		Group
Y 99308	BUG	13	6
YC19749	SAM	76	6
YC19751	SAM	78	6
YC19752	SAM	79	6
YC19819	SAM	163	6
YC19820	SAM	164	6
YC19822	SAM	166	6
YC19824	SAM	168	6
YC19826	SAM	170	6
YC19827	SAM	171	6
YC19828	SAM	172	6
YC19829	SAM	173	6
YC19830	SAM	174	6
YC19832	SAM	176	6

Group 7 –

Grant Number	Claim		Group
YC19742	SAM	69	7
YC19744	SAM	71	7
YC19796	SAM	131	7
YC19797	SAM	132	7
YC19798	SAM	133	7
YC19800	SAM	135	7
YC19802	SAM	137	7
YC19804	SAM	139	7
YC19806	SAM	141	7
YC19808	SAM	143	7
YC19810	SAM	145	7
YC19812	SAM	147	
YC19815	SAM	159	7
YC19816	SAM	160	7
YC19817	SAM	161	7
YC19818	SAM	162	7

Group 8 –

Grant Number	Claim		Group
YA22250	GUB	42	8
YA23648	GUB	65	8
YA23649	GUB	66	8
YC19728	SAM	55	8
YC19729	SAM	56	8
YC19730	SAM	57	8
YC19731	SAM	58	8
YC19842	SAM	186	8
YC19843	SAM	187	8
YC19844	SAM	188	8
YC19845	SAM	189	8
YC19846	SAM	190	8
YC19847	SAM	191	8
YC19848	SAM	192	8
YC19849	SAM	193	8
YC19741	SAM	68	8

Group 9 –

Grant Number	Claim		Group
YC19717	SAM	42	9
YC19718	SAM	43	9
YC19719	SAM	44	9
YC19720	SAM	47	9
YC19721	SAM	48	9
YC19732	SAM	59	9
YC19733	SAM	60	9
YC19787	SAM	116	9
YC19788	SAM	117	9
YC19789	SAM	118	9
YC19790	SAM	119	9
YC19791	SAM	120	9
YC19792	SAM	121	9
YC19793	SAM	122	9
YC19794	SAM	123	9
YC19795	SAM	124	9

Group 10 –

Grant Number	Claim		Group
Y 99307	BUG	12	10
YC19676	SAM	1	10
YC19677	SAM	2	10
YC19678	SAM	3	10
YC19679	SAM	4	10
YC19680	SAM	5	10
YC19681	SAM	6	10
YC19682	SAM	7	10
YC19683	SAM	8	10
YC19684	SAM	9	10
YC19685	SAM	10	10
YC19698	SAM	23	10
YC19699	SAM	24	10
YC19701	SAM	26	10
YC19703	SAM	28	10
YC19705	SAM	30	10

Group 11 –

Grant Number	Claim		Group
Y 99306	BUG	11	11
YC19686	SAM	11	11
YC19687	SAM	12	11
YC19688	SAM	13	11
YC19700	SAM	25	11
YC19702	SAM	27	11
YC19704	SAM	29	11
YC19706	SAM	31	11
YC19689	SAM	14	11
YC19690	SAM	15	11
YC19691	SAM	16	11
YC19707	SAM	32	11
YC19708	SAM	33	11
YC19709	SAM	34	11

YC19710	SAM	35	11	YC19711	SAM	36	11

Group 12 –

Grant Number	Claim		Group	Grant Number	Claim		Group
Y 98589	BUG	7	12	YC19734	SAM	61	12
YA22252	GUB	44	12	YC19735	SAM	62	12
YC19716	SAM	41	12	YC19736	SAM	63	12
YC19722	SAM	49	12	YC19737	SAM	64	12
YC19723	SAM	50	12	YC19738	SAM	65	12
YC19724	SAM	51	12	YC19739	SAM	66	12
YC19726	SAM	53	12	YC19740	SAM	67	12
YC19727	SAM	54	12				

Groups SAM1 and SAM 2 (filed previously by Kevin Brewer)

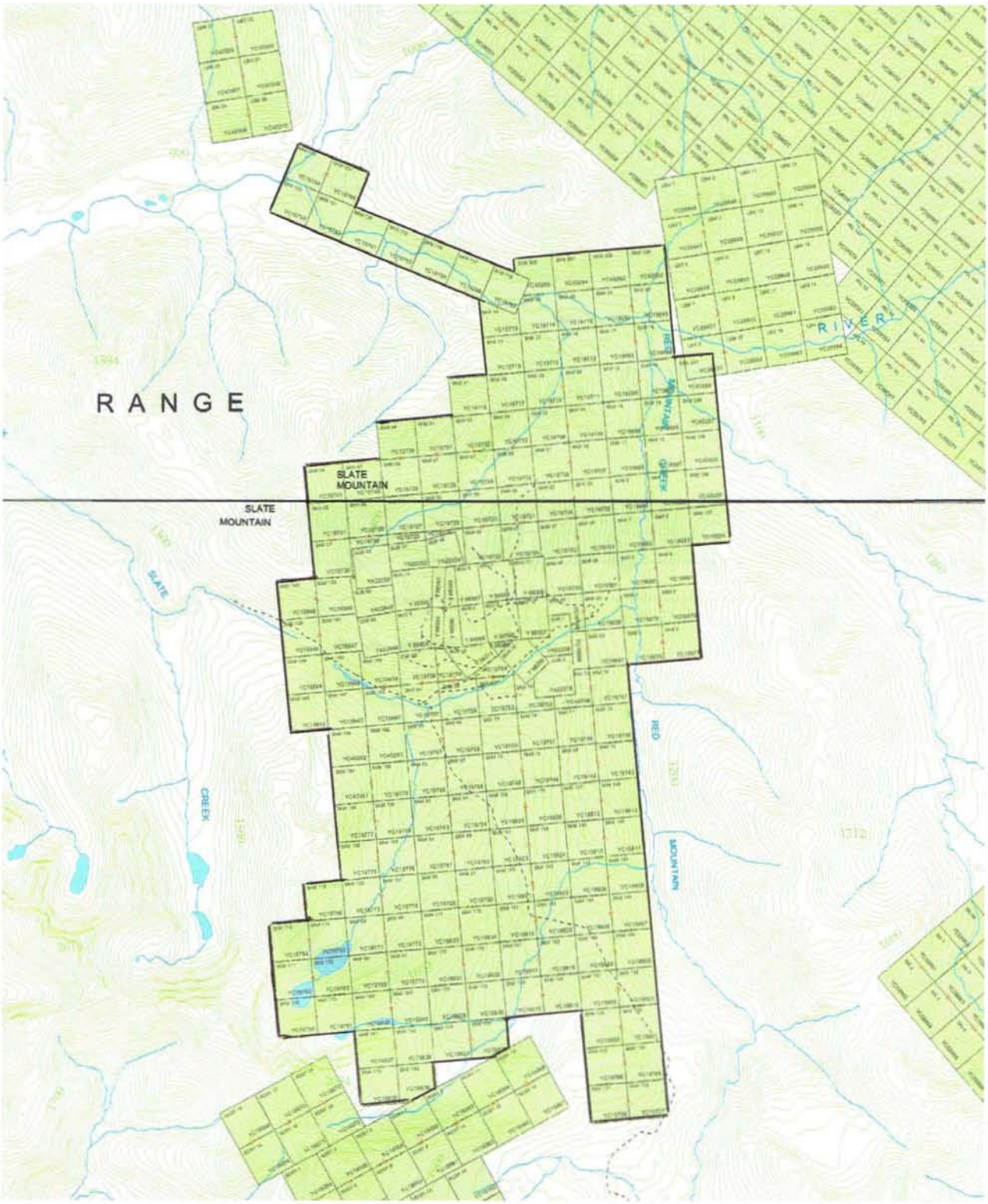
Grant Number	Claim		Group	Grant Number	Claim		Group
YC19693	SAM	18	SAM 1	YC40293	SAM	206	SAM 1
YC19695	SAM	20	SAM 1	YC40294	SAM	207	SAM 1
YC40284	SAM	197	SAM 1	YC40295	SAM	208	SAM 1
YC40285	SAM	198	SAM 1	YC40281	SAM	194	SAM 2
YC40286	SAM	199	SAM 1	YC40282	SAM	195	SAM 2
YC40287	SAM	200	SAM 1	YC40283	SAM	196	SAM 2
YC40288	SAM	201	SAM 1				
YC40292	SAM	205	SAM 1				

Claims Paid in Lieu of Work

Grant Number	Claim		
YC19692	SAM	17	PIL
YC19694	SAM	19	PIL
YC19712	SAM	37	PIL

Grant Number	Claim		
YC19713	SAM	38	PIL
YC19714	SAM	39	PIL
YC19715	SAM	40	PIL
YC19780	SAM	109	PIL

Plan of Quartz Claims on Red Mountain
Map Sheets 105C13 and 105F04



Tintina Mines Ltd. - Red Mountain Access

Conceptual Design Report

Prepared By:
Yukon Engineering Services Inc.
Whitehorse Yukon,

Prepared For:
Tintina Mines Ltd.

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Introduction

Tintina Mines Ltd is in the process of developing the Red Mountain Porphyry Molybdenum Deposit near Whitehorse Yukon. A part of the development will be the construction of an all-weather road from km 48 of the South Canol Highway #6 to the mine site. This report discusses the choice of alignment between km 17 and 54 of the existing winter trail.

There are two potential routes for the mine access road, the original winter trail developed in the 1970's (the Amoco Trail), and the Iron Creek Route, an entirely new route that appears to be more direct. The choice of routes will be between km 17 and km 54. The two routes offer significant differences, length, height of land and water body crossings all present obstacles to route development. The two routes are also different in that the one route (the Amoco Trail) is partially developed, while the Iron Creek Route is a completely new alignment from the confluence of Iron Creek and Sydney Creek, resulting in new construction for approximately 35 km.

Tintina would like to assess each route and determine the best road to invest in for the upcoming mining project. The route chosen will eventually be used as a haul road to move concentrated ore out of the mine and mining supplies into the mine.

Permits were sought, and obtained, for a winter access road to Red Mountain during the fall of 2005 along the Amoco Trail. The intention was to conduct a winter geotechnical study of the proposed underground decline location at the site. Various delays have caused the permits to not be used as of the time of this writing.

Methodology

Mapping at a scale of 1:50,000 was obtained in a digital format of the area and was used to create a digital terrain model of the ground along the alignment of the roads. Surficial Geology mapping of the area at a scale of 1:125,000 was obtained from Yukon Geological Survey. This was used to determine the type of ground that the road would be traversing, and the types of material that could be used to construct the road. Local placer miners and outfitters were contacted and questioned about the route and finally the route was flown by helicopter to view the terrain. Significantly more information exists for the Amoco Trail in that it can be travelled by ATV, while the Iron Creek Route cannot.

The road was modelled in EMXS ACAD design software and an alignment and profile were determined using an iterative process. The Transportation Association of Canada Manual of Geometric Design Standards for Canadian Roads was consulted to determine appropriate standards for an RCU-60 design, which included:

- Maximum Grade 10%

- Minimum Sag “k” of 10
- Minimum Crest “k” of 15
- Minimum Radius Corners of 120 m

Also determined to be suitable and to result in a cost effective road were the following design parameters:

- Single Lane 5 m road top
- Intervisible pullouts
- 1.5:1 side, fill and back slopes
- 0.25:1 Cut slopes in rock

The designs are very preliminary and are used for very initial estimates only. Examples are that the design does not allow for the intervisible pullouts, rip rap, guiderail widening, signage, or many other details of the road. Opportunities exist for improvement to this incomplete design.

Iron Creek Route

History and Purpose

The concept of the Iron Creek Route was first introduced to Tintina Mines Ltd during the summer of 2005 when considering the expense of up grading the Amoco Trail to an all weather road. The Amoco Trail, when looking at a map appears to take a circuitous route to the mine site at Red Mountain. The map shows a straighter route from the confluence of Sydney Creek and Iron Creek, toward the mountain. And when a line is drawn on the map the Iron Creek route appears to be significantly shorter. The Iron Creek Valley appears to be a wide and fairly flat valley with very little obstruction to road construction.

Description

This route is 33.5 km long and starts by heading in a northerly direction. The route describes a gently westerly turning arc to the summit, from where it wanders back and forth in a manner forced upon it by the terrain. It follows a wide valley along the northern side, and leaves the valley by climbing along the edge of a steep wall before dropping over the other side into a different drainage area. From the summit it will descend approximately 12 km before it meets the existing road. Vegetation begins in a Pine forest, to a sparse spruce treed area and eventually climbs above treeline. The route will be difficult to construct due to the steepness of the sides of the valley, and the rock materials that will need to be excavated to construct the road.

Iron Creek meets Sydney Creek at approximately km 17 of the Sydney Creek Road. A steep walled canyon and a fast moving stream characterize Iron Creek at this point. The creek bed is composed of boulders and cobble. Placer miners have a history in the area, as there are significant placer workings apparent. The sides of the creek valley vary from

steep gravel to sheer rock cliffs for the first 5 km from Sydney Creek. Through this section the road would be constructed to the east of the canyon. Terrain to the east is rolling, with pine tree vegetation. After the first 5 km the character of the creek changes significantly. The creek rises from the narrow little wooded valley into a more wide open and gently sloping area. Local miners and the local outfitter advises that this area is very wet in the summer and that it consists of moss, swamp grass and is very unstable for the passage of heavy equipment. One fellow said that to drive his dozer along is like driving on a mattress. For this reason a road through this area will have to stay to the north side of the valley and up on the side of the hill. This condition remains throughout the valley from approximately km 5 right to the top of the valley. The Iron Creek Valley is approximately 20 km long before the valley bottom transcends to a steep wall over which a road must pass before going down the other side to join the Swift River drainage basin. The summit of the road will be approximately 1700 m ASL, a rise of 840 m from the junction of the Sydney Creek Road.

From the summit the road will start to descend along very steep side hill slopes. It follows a tributary of the Swift River for approximately 6 km before it rises to a drainage divide and then down a tributary of Red Mountain Creek. The road drops 360 m in the last 10 km.

Surficial Geology information shows that the road travels through approximately 15 km of glacial till, approximately 9 km of rubble, and 10 km of bedrock. There is no information available for these different materials other than the Surficial geology and observation.

The currently available mapping shows 6 watercourses to be crossed. At the bottom of Iron Creek is a waterfall that provides an effective barrier to spawning fish, however this does not mean that there are no fish in the watershed. Only 1 of the creeks observed appears to be significant enough to warrant the installation of a crossing structure. However this information will have to be verified by field measurements and flow data. The remaining creek crossings will possibly be crossed with large culverts.

The proposed route for the road follows along the south-facing slope for almost the entire route. The exception is at the northwest end of the road where it joins the Amoco Trail. At this point the valley is steep enough that the road had to turn north to reach the valley bottom and the Amoco Trail. There is a potential for permafrost along this north-facing slope. This information will have to be determined from field observations and drill hole results.

Cost Estimate

Construction of this section of road will involve excavation of approximately 1 Million cubic metres of materials. The majority of the materials excavated will consist of Glacial Tills and Rubble. Approximately 30% of the materials will consist of Rock. The rock will be the highest single cost for the construction of the road, and it is also the least known quantity of the route. The stream crossing will involve the use of a bridge or a very large culvert, and there are 4 more significant streams that will require a 2000 mm culvert. The rest of the drainage will potentially require a culvert every 500 m along the entire route.

These culverts are estimated to be an average of 15 m long. The road must be surfaced to allow the traffic to travel smoothly and also to lower the maintenance costs. An item for 150 mm of granular surfacing is included in the estimate. Because the road will follow very steep hill sides an item for guide rail is included. As an alternative the design may incorporate a widening for a berm along the edge of the road rather than the guiderail, depending on the expense.

Item	Unit	Est Vol	Cost/ Unit	Total Cost
Clearing	Ha	40	$ 4,000.00	$ 160,000.00
Grubbing	Ha	60	$ 4,000.00	$ 240,000.00
Excavation Common	m^3	740000	$ 6.00	$ 4,440,000.00
Excavation Rock	m^3	340000	$ 24.00	$ 8,160,000.00
Subgrade	m^3	52000	$ 10.00	$ 520,000.00
Surfacing	m^3	26000	$ 25.00	$ 650,000.00
Stream Crossing	m	15	$15,000.00	$ 225,000.00
Culverts 2000mm	m	100	$ 750.00	$ 75,000.00
Culverts 1000mm	m	1020	$ 400.00	$ 408,000.00
Guiderail/Berm	m	12000	$ 200.00	$ 2,400,000.00
Sub Total				**$17,278,000.00**
Engineering and Design	%	10		$ 1,727,800.00
Contingency	%	15		$ 2,591,700.00
Total				**$21,597,500.00**

Cost per km is $686,677.

Volumes for the excavation and other materials were taken from mapping of significantly low detail, and should be considered as a preliminary estimate only. Insufficient information exists for the route and prior to detailed design, geotechnical, hydrological, geological and topographical studies must be done. A project of this size must be well defined prior to construction to avoid any unpleasant surprises that may prevent the construction once an initial investment is made.

Maintenance

The Iron Creek portion of this route follows along the right hand side of the valley to avoid the wet and unstable valley bottom. However because it is at the base of the hill it will be susceptible to snow and land slides. There is no evidence of avalanches at this time but there is not sufficient information to determine whether the road cut will affect the stability of the side hill.

Near the summit, the road cut will be a vertical wall on the back slope. This may cause recurring maintenance problems with respect to falling rock. A total of 20 km of rock cut is expected to take place. Falling rock will present a hazard to the travelling vehicles and will require removal on a regular basis.
Snowfall in the area is expected to be significant. The nearest data is approximately 46 km south of Red Mountain at Meadow Creek. The Meadow Creek recorded 1.2 m of

snow depth during April of 2005. A visit to the Red Mountain area in January of 2006 resulted in snow measurements of 0.8 to 1.2 m through the Iron Creek Route. An observation was that the hilltops were quite wind swept, which leads us to believe that significant drifting will occur.

The route has consistent grades of 10%, which require more maintenance than the flat road sections. Large trucks have trouble to climb grades in excess of 8% when there is snow on the ground. These trucks may require tire chains, and maintenance equipment will be required to blade the snow off the road and sand in these areas.

Maintenance of the road is expected to consist of:

- Snow removal in winter
- Surface maintenance in summer
- Sanding
- Drainage Structure Maintenance
- Surface Icing Control
- Drainage Structure Icing Control
- Drift Control

Grader time is expected to be full time during the winter months and part time all summer, while loader and dozer time will be on an as needed basis only. Both of these machines will find other uses at the mine site and will be dispatched to road maintenance at the request of the mine site manager, or the road foreman/lead equipment operator. The plow/sander truck will double as a dump truck during the summer months to haul gravel or sand.

Iron Creek Route Maintenance

Equipment	Model	Rate	Hrs/wk	Cost/Wk	Cost/km/wk	Yearly
Grader	14H	$ 160.00	40	$ 6,400.00	$ 160.80	$ 332,800.00
Loader	966G	$ 160.00	20	$ 3,200.00	$ 80.40	$ 166,400.00
Dozer	D7R	$ 210.00	15	$ 3,150.00	$ 79.15	$ 163,800.00
Plow/Sander Truck	Tandem	$ 160.00	30	$ 4,800.00	$ 120.60	$ 249,600.00
Labourer		$ 50.00	40	$ 2,000.00	$ 50.25	$ 104,000.00
Foreman		$ 70.00	20	$ 1,400.00	$ 35.18	$ 72,800.00
Supplies	Sand Etc			$ 3,000.00	$ 75.38	$ 156,000.00
				$23,950.00	**$ 601.76**	**$1,245,400.00**

User Costs.

The nature of this road is that it is steep, narrow and contains many sharp curves. Users of the road will consist of employees, suppliers and ore trucks. Employee traffic will consist primarily of cars and pickups. Suppliers will consist of all sorts of vehicles, from pickups to large B-train fuel haulers. And depending on the capacity of the mill, ore hauling will be a continuous cycle on the road.

Employee Traffic
An estimated 60 people will work at the mine, with a turn around time of 10 days, and approximately 75% of the people will bring a private vehicle to the site. As a result employee traffic will be in the neighbourhood of 45 return trips per 10-day period.

Supplier Traffic
Suppliers to the mine site will initially result in heavy traffic as the components for the mill and camp, and the underground and surface machinery are brought to the site. Consistent traffic will bring all of the necessary renewable materials to allow the mine to continue operations. Fuel, blasting supplies, groceries, parts for repairs, drilling supplies, expansion and replacement components, and outside to the mine personnel that may be required. With a B-train load of fuel required at the mine every 2 days, and other services making another estimated 5 trips per day, the total traffic due to suppliers will be an estimated 55 round trips every 10 days.

Ore Hauling
Production at the mine is not yet known at this time, however for the purposes of this document a capacity of up to 10,000 tonnes per day will be assumed. With ore grading 0.3% MoS_2 the daily production of the mill would be 30 tonnes of concentrate per day, or one B-Train load.

Total trips made will be 9 employee trips, 11 supplier trips and 2 Ore Hauling trips, equals 22 trips per day.

The Iron Creek Route has an average grade over 34 km of 4 %, uphill and down. With a rolling resistance of 3.5 % on this type of road, the average speed of loaded trucks travelling this route will be approximately 15 km/hr. Trucks travelling empty will be able to go slightly faster with an estimated 25 km/hr average speed. It is expected that deliveries to the site will be paid on an hourly basis once the truck leaves the Canol Road, resulting in a direct cost to the owner for extra time that the commercial vehicles will spend on the road. It is expected that the private vehicles will travel on their own time and as a result there will be no direct cost to the owner. Costs associated with travel time will be borne by the employee.

13 of the total trips per day will result in a cost to the owner, and if 50% of these trips are heavy trucks travelling at the speeds mentioned, the result will be 6.5 trucks and 6.5 smaller commercial vehicles. The smaller commercial vehicles are not effected so much by steep grades due to a higher power to weight ratio, so an estimated average speed of 40 km/ hr, for these types of vehicles will be used in both directions.

Vehicle	#/day	hrs/veh/day	Cost/hr	Cost/day	Cost/yr
Heavy Truck	6.5	1.94	$ 140.00	$1,768.00	$645,320.00
Light Truck	6.5	0.85	$ 55.00	$ 303.88	$110,914.38
Car	9	0.68	$ -	$ -	$ -
Totals	22			$2,071.88	$756,234.38

Amoco Trail

History and Purpose

Amoco first used the Amoco Trail in the 1970's and 1980's to support drilling at the Red Mountain site. It has been used primarily as a winter road. The trail originally only went from Red Mountain to what was termed "Float Plane Lake" at km 50 of the trail. When significant drilling activity first started at the Red Mountain site the road was expanded to continue from Float Plane Lake to the Sydney Creek Road. The road has seen limited use by the local outfitter as a trail ride on horseback, and a few private individuals have travelled the road by snowmobile or ATV.

Because the road has been used primarily as a winter road, creek crossing structures and wet area crossings have not been constructed. During the winter the entire route would be frozen solid and these items were not necessary to allow the heavy equipment and trucks to travel.

The route has not seen service in many years and as a result has been a victim of the natural reclamation process. Vegetation has grown up through the road for almost the entire route, side hills have collapsed down on the road and sections have been washed out or disappeared. The route is difficult to follow due to the level of vegetative overgrowth, either from the air or on the ground. This overgrowth would have to be removed and piled nearby prior to new construction.

Significant information is available for this route. In the summer of 2005 Tintina had Yukon Engineering Services, Inc. map the entire route through air photo interpretation, the route was travelled by Tintina personnel and a YES Engineer, and baseline water studies were conducted by Access Consulting Group to determine the environmental issues associated with road construction through the area. Detailed design would require a geotechnical-drilling program to be conducted over the route to determine gravel sources and subgrade conditions.

Description

The first two creek crossings that the road encounters past the end of the improved road are Iron Creek and then Sydney Creek. Both of these creeks appear to be fairly significant watercourses and will require bridges to span these fish bearing streams. Although the creek does not appear to be very deep, the water flows quickly. The crossing is estimated to

Between Iron Creek and Sydney Creek the road follows along the east side of Sydney Creek along the coarse gravel creek valley. The road is flat with a very gradual slope upwards. The area is populated with willow, alder, and spruce trees of significant height. The Sydney Creek crossing is located 19.75 km from the Canol Highway. 750 m past the

Sydney Creek crossing the road crosses Twin Creek. This creek appears to be significant from the air, and will require a bridge to cross it.
At Twin Creek the road leaves the Sydney Creek valley and starts to climb the west side of the valley at a grade of 8% for the next 1500 m to km 22. After km 22 the grade reaches the steepest portion of the entire road at approximately 20% over 800 m. It is likely that any trucks hauling heavy loads will require assistance to negotiate this grade, particularly in the winter. For this reason a revision is proposed to the present road alignment to divert around a hill side to enable the road to climb at a gentler grade. This revision is approximately 2 km long and will enable the road to climb at a constant rate averaging 8%. Over the next 4 km the road reduces the grade to an average of 6%. At km 26 the road crosses a small stream that will require a large culvert. From this point the road travels along a gentle north-facing hillside to km 30 where it meets the headwaters of Flat Creek. This hillside is observed to have water draining out from under the moss, so will require extra drainage facilities to keep the water away from the road.
From the headwaters of Flat Creek the road turns south and crosses the height of land to meet the headwaters of Hundred Mile Creek. There are two small creek crossings along this 6 km section of road that will require culverts. The road passes along a wide valley with gentle slopes on each side before it enters a narrow and steep sided creek valley. The grade through this section is almost flat before it enters the steep sided section at which point it starts to descend at approximately 8%. The road through here is narrow along a side hill cut with embankment failure.

At km 36 the road turns west again and climbs for approximately 2 km before it descends to a small-unnamed creek at km 38.5. The road is now entering the Swift River Valley. From this point the trail follows a southwest-facing slope for 5 km before it crosses a significant stream in a small valley at km 43.5. The road through this section is fairly flat and is traveling northwest. The creek crossing at km 43.5 has steep enough sides that the road must approach the creek at an angle in a side hill cut. The creek is wide enough and fast enough that a bridge may be required here as well.

From the km 43.5 crossing the road follows the side hill up out of the creek valley to emerge on the wider Swift River valley again. The road is close to the steeper side of the valley now and stays a long way away from the river. At km 47.0 the road leaves the Swift River Valley and turns directly north up an unnamed tributary of the Swift River. The grade through this section is fairly flat and follows the stream along the east side of the valley to km 50 where it passes along the east side of what is unofficially called Float Plane Lake. The name comes from the lake being used to land floatplanes that would bring supplies to the Red Mountain project during the initial exploration stages.

From km 38 to approximately km 48 the road is very overgrown with willows and other small trees. In its current state the road is impassable due to the overgrowth.

After the road passes the small lake near km 50 the road passes over the divide of the watershed and joins the east side of another tributary of the Swift River. At approximately km 52.2 the road crosses a small creek in a swampy area. From this point the road is still going directly north along the east side of the creek. The grade is

gradually uphill and materials appear to be coarse gravels where the side hill cut is exposed.

Km 54 is the point at which the Iron Creek road would join the Amoco Trail, at which point both roads would follow the Amoco Trail to the mine site.

The Amoco Trail has 13 stream crossings between Iron Creek and km 54. The majority of these crossings will simply use culverts to cross, or if the stream has fish in it, will use an arch span bottomless culvert. Four of the crossings will potentially require bridges.

Cost Estimate

Construction of the Amoco trail from Iron Creek to km 54 will entail the excavation of approximately 450,000 m^3 of materials. The road over this section is 39.8 km long. Three bridges will be constructed with a total estimated length of 40 m. 10 large culverts will be installed, at an estimated 15 m long per culvert, there will be 150 m of large culvert installed. Approximately half of the route will require clearing and grubbing, resulting in 50 Ha of each. Surfacing of some sort will be required to smooth the surface. This amounts to 30,000 m^3 at 15 cm deep.

A large assumption for this road is that the local materials will be useable for a sub base. Observations and Surficial geology maps indicate that the local materials are glacial tills of varying characteristics of fineness. If the materials are not satisfactory the subgrade will require strengthening to enable it to carry the loads imposed by trucks and heavy equipment. Initial estimates and observations indicate that suitable gravel is present, however further testing will be required to ascertain the suitability of these materials.

Item	Unit	Est Vol	Cost/ Unit	Total Cost
Clearing	Ha	50	$ 4,000.00	$ 200,000.00
Grubbing	Ha	50	$ 4,000.00	$ 200,000.00
Excavation Common	m^3	450,000	$ 5.50	$ 2,475,000.00
Subbase	m^3	60,000	$ 10.00	$ 600,000.00
Surfacing	m^3	30,000	$ 25.00	$ 750,000.00
Stream Crossing	m	40	$15,000.00	$ 600,000.00
Culverts 2000mm	m	150	$ 750.00	$ 112,500.00
Culverts 1000mm	m	600	$ 400.00	$ 240,000.00
Guiderail/Berm	m	500	$ 200.00	$ 100,000.00
Sub Total				**$ 5,277,500.00**
Engineering and Design	%	10		$ 527,750.00
Contingency	%	15		$ 791,625.00
GST	%	7		$ 461,781.25
Total				**$ 7,058,656.25**

Cost per km is $177,353.

Maintenance

Maintenance of the Amoco Trail is expected to be high. The route has several grades of 10%, which require more maintenance than the flat road sections. Large trucks have trouble to climb grades in excess of 8% when there is snow on the ground. These trucks will require tire chains, or maintenance equipment will be required to blade the snow off the road and sand the road in these areas.

Maintenance of the road is expected to consist of:

- Snow removal in winter
- Surface maintenance in summer
- Sanding
- Drainage Structure Maintenance
- Surface Icing Control
- Drainage Structure Icing Control
- Drift Control

Amoco Trail Maintenance

Equipment	Model	Rate	Hrs/wk	Cost/Wk	Cost/km/wk	Yearly
Grader	14H	$160.00	25	$ 4,000.00	$ 100.50	$ 208,000.00
Loader	966G	$160.00	20	$ 3,200.00	$ 80.40	$ 166,400.00
Dozer	D7R	$210.00	15	$ 3,150.00	$ 79.15	$ 163,800.00
Plow/Sander Truck	Tandem	$160.00	30	$ 4,800.00	$ 120.60	$ 249,600.00
Labourer		$ 50.00	40	$ 2,000.00	$ 50.25	$ 104,000.00
Foreman		$ 70.00	30	$ 2,100.00	$ 52.76	$ 109,200.00
Supplies	Sand Etc			$ 1,000.00	$ 25.13	$ 52,000.00
				$20,250.00	**$ 508.79**	**$1,053,000.00**

User Costs.

Users of this road will consist of employees, suppliers and ore trucks. Employee traffic will consist primarily of cars and pickups. Suppliers will consist of all sorts of vehicles, from small delivery trucks to large B-train fuel and ore haulers. And depending on the capacity of the mill, ore hauling will be a continuous cycle on the road.

Employee Traffic

An estimated 60 people will work at the mine, with a turn around time of 10 days, and approximately 75% of the people will bring a private vehicle to the site. As a result employee traffic will be in the neighbourhood of 45 return trips per 10-day period, or 9 one-way trips per day.

Supplier Traffic

Suppliers to the mine site will initially result in heavy traffic as the components for the mill and camp, and the underground and surface machinery are brought to the site. Consistent traffic will bring all of the necessary renewable materials to allow the mine to continue operations. Fuel, blasting supplies, groceries, parts for repairs, drilling supplies, expansion and replacement components, and outside to the mine personnel that may be required. With a B-train load of fuel required at the mine every 2 days, and other services making another estimated 5 trips per day, the total traffic due to suppliers will be an estimated 55 round trips, or 11 one way trips every day.

Ore Hauling

Production at the mine is not yet known at this time, however for the purposes of this document a capacity of 10,000 tonnes per day will be assumed. With ore grading 0.3% MoS_2 the daily production of the mill would be 30 tonnes of concentrate per day. One truck is capable of hauling this amount, resulting in two one-way trips per day.

Total trips made will be 9 employee trips, 11 supplier trips and 2 Ore Hauling trips, equal 22 round trips or 44 one-way trips per day.

The Amoco Route has varying grades over short stretches, resulting in lower travelling times. There are two major hills on the route; the hill from km 3 to km 10 has an average grade of 6.2 %, and the hill from km 30 to km 39.5 averages 4.2 %. While traversing the first hill the truck traffic will travel at 16 km/hr while fully loaded, and 35 km/h when empty. On the second major hill the truck traffic will be quicker at 21 km/hr loaded and 40 km/hr empty. Over the rest of the route truck traffic will be able to travel at approximately 40 km/hr. The total average speed over the entire road for heavy trucks will be 33 km/hr.
It is expected that deliveries to the site will be paid on an hourly basis once the truck leaves the Canol Road, resulting in a direct cost to the owner for extra time that the commercial vehicles will spend on the road. It is expected that the private vehicles will travel on their own time and as a result there will be no direct cost to the owner. Costs associated with travel time will be borne by the employee.

13 of the total trips per day will result in a cost to the owner, and if 50% of these trips are heavy trucks travelling at the speeds mentioned, the result will be 6.5 trucks and 6.5 smaller commercial vehicles. The smaller commercial vehicles are not effected so much by steep grades due to a higher power to weight ratio, so an estimated average speed of 40 km/ hr, for these types of vehicles will be used in both directions.

Vehicle	veh/day	hrs/veh/day	Cost/hr	Cost/day	Cost/yr
Heavy Truck	6.5	1.20	$140.00	$1,092.00	$398,580.00
Light Truck	6.5	0.8	$ 75.00	$ 390.00	$142,350.00
Car	9	0.67	$ -	$ -	$ -
Totals	22			$1,482.00	$540,930.00

Conclusion

Summary

Although the Iron Creek route is significantly shorter, all of the costs associated with the road will be higher.

Construction costs for this section of road will be approximately 3 times what that for the Amoco Trail will be. This is in a large part due to the higher volumes of excavation resulting from the steep sidehills, but also from the materials to be excavated, expected to be in a large part competent rock. Also contributing factors are the lack of information including mapping, geotechnical, hydrological and environmental.

The maintenance costs for the Iron Creek route are higher due to the high summit and the resulting exposure to drifting snow and falling rock. During the winter season full time maintenance personnel will be required, as well as the associated equipment.

User costs for the Iron Creek route are higher, despite the shorter distance. The horizontal distance is 5 km shorter but the vertical distance travelled is very close to twice that of the Amoco Trail Route. Vertical travel is significantly more expensive than horizontal travel, and slower as well.

Comparison

The Present Value of the two routes and the comparison of costs;

Item	Iron	Amoco
Const	$ 21,597,500.00	$ 6,596,875.00
Maintenance	$ 1,245,400.00	$ 1,053,000.00
User	$ 756,234.38	$ 540,930.00
PV/20yr/7%	($279,773,318.78)	($212,185,961.58)

Statement of Qualifications:

I, Erik Nyland, of 7-5 Klondike Road, Whitehorse, Yukon, do hereby certify that:

a) I am a graduate of the University of Alberta (2003) with a Bachelor of Science in Civil Engineering;

b) I am a registered Professional Engineer in the Yukon Territory;

c) I have over 25 years of experience in road construction, mining and project management;

d) From 2000 to the present I have worked in the engineering field, mainly in road construction, where I have designed roads and mine surface works, managed road construction projects, and various studies;

e) I worked extensively on the Red Mountain Project and visited the site several times during the period May 1st, 2005 to October 30, 2006;

f) I authored this report; and

g) I have no financial interest and do not expect to receive any financial interest in the future with Tintina Mines Canada Ltd. or the Red Mountain lode mineral properties.

Erik Nyland, P.Eng.

Tintina Mines Ltd.

Red Mountain Access Road
Geotechnical Investigation.

Project Description

Introduction

Tintina Mines Ltd. is the sole owner of a quartz mining property at Red Mountain in Yukon. Red Mountain is located at 60d 58m 00s North Latitude, 133d 44m 00s West Longitude, approximately 80 km east of Whitehorse. Red Mountain is accessed from the South Canol Road at km 48, near the Sydney Creek Crossing. Access is then along the Sydney Creek Road, with the mine site approximately 65 km from the South Canol Road.

Government of Yukon, Transportation Maintenance Branch, maintains the South Canol Road seasonally only. The road is closed from November through to May each year. The road is narrow, winding and is quite steep in some locations.

The Sydney Creek Road is a summer only access along Sydney Creek that is mainly used by the local placer miner at the confluence of Sydney Creek and Iron Creek (km 17). Beyond this point the road is mostly untravelled. The road was originally used as a winter access road to Red Mountain in the 1970's. The road has never had any summer traffic other than the local outfitter and occasional hunters. The last known use of the winter road was to supply Amoco's Red Mountain drilling program in the 1970's.

The property was originally discovered in the 1960's, was explored to deposit class through the 70's and 80's and now, under the ownership of Tintina will be in the advanced stages of exploration.

There is an airstrip approximately 10 km northwest of Red Mountain, which is in useable condition. The airstrip is located on the edge of the Boswell River and airplanes as large as a DeHavilland Otter have landed there over the past 2 summers.

The Project

Tintina Mines Ltd. intends to develop its Red Mountain Property, and is in the process of designing an access road from the Canol Road to the mine site. The existing road is unusable in its present condition and as a result the road will have to be reconstructed to provide all weather access to the site.

Mapping of the area has been completed and the next step is to investigate the geotechnical properties of the route before detailed design can be completed. Geotechnical investigation will consist of excavating test holes at approximately 300 m intervals along the entire route. This will require the use of a tracked excavator accompanied by a geotechnical engineering technician. Due to the length of the route the excavator will require support in the form of fuel and access by four wheel drive vehicle, so a tote trail will be constructed ahead of the testing equipment and personnel.

The road, for the main part follows the existing route, however for various reasons the new route will depart from the existing in four locations. These revisions will require that the trees be removed and the route levelled prior to the passage of the geotechnical testing crew. Brush removal will be accomplished in the first by hand, with crews falling and removing the larger trees for later salvage, and then with the dozer piling the brush in a location where it can be recovered in the future. The dozer will also level and grade the trail enough to allow the passage of the excavator and vehicles.

Camp will be located at the confluence of Iron Creek and Sydney Creek in a location which is presently used by the local placer miner. The road is passable enough to this point to allow a truck to transport the camp to this site.

The entire geotechnical testing program and tote trail construction is expected to take approximately one month. Once the equipment arrives at the mine site it will be employed constructing exploration trails, building pads, and digging test holes and a septic system for the camp. It is at this time that a second excavator may be employed, depending on the location of the machine excavating test holes and program requirements.

The project is undergoing the YESAA process and the requirements of the Land Use Permit and the Mining Land Use Permit must be followed throughout the testing program. Further information on permit issues can be obtained from the Project Manager.

The Road

General Condition

As can be expected of a road that has not been used since the 1970’s, the road is in poor condition and is overgrown through many areas. Where the road travels along a side hill, in many places the side hill has sloughed in until the road is not wide enough to allow the passage of vehicles wider than an ATV. The road has been washed out in a few locations due to spring thaw and rainfall. Due to the overgrowth on the trail it is sometimes difficult to follow, on the ground or even in the air from a helicopter.

There are no creek crossing structures in place along the trail, so the creeks will all have to be forded. Equipment will have to cross these streams once on the way into the mine site and again when the equipment returns. The support vehicles will cross these streams daily as the operators and technicians move back and forth from the equipment and locations of work.

The poor condition of the existing road presents an opportunity to change the alignment of the road to more favourable locations. There are four locations that revisions to the alignment have been identified as being favourable to the future usability of the road.

Revision one is located near km 15 of the Sydney Creek road and is approximately 1.7 km long. The current road descends to Sydney Creek down a very narrow creek gully, which is too steep and not wide enough to allow construction of a road to the standards required of the Red Mountain Access Road. The new alignment will leave the current route near km 15.4 and travel downhill in a southerly direction. Near the valley floor the route will turn right and eventually join the original route.

The location of the second revision is from km 21.0 to km 28.5. The reason for the revision is that the road climbs a very steep grade here, approaching 20% in locations, the new route will shorten the road by approximately 4 km, and there is little opportunity to improve the grade within the present alignment.

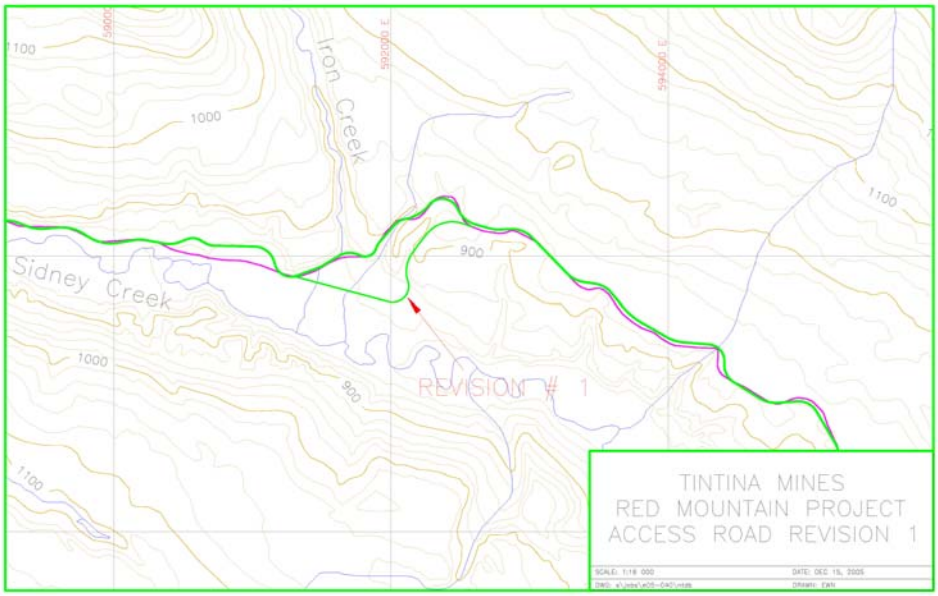
The third revision will change the road from km 36.5 to km 42.5. The main reason to move the alignment is to avoid a north-facing hillside that is characterized by permafrost. The road will be moved to a location that has been identified as being based in gravels.

The fourth revision will be from km 55.3 to km 57.2. The road crosses a creek within this section and then it re-crosses the creek shortly afterwards. The objective of this revision is to avoid a repeated creek crossing. The route between the two creek crossings is also characterized by exposed bedrock, which would make the road difficult and expensive to construct.

The majority of the road is based in glacial till, with varying amounts of cobble and fines. Sections of the road are wet in the summer time, and it is unknown whether this will result in the flow of water across the road.

Road Description

The road leaves the South Canol Road and follows the north side of the Sydney Creek Valley through a previously logged area. In this location the road is used by the local placer miner on a regular basis and is passable for heavy equipment. Some corners are quite tight and may require minor realignments to allow the passage of truck and trailer units. The road is rough here in the summer time and snow will be used to fill ruts and holes in the surface. Iron Creek is at km 17 and the road follows the creek down from the bench to the valley bottom along the East side of Iron Creek. A local Placer Miner has his operation at the point where the road arrives onto the Sydney Creek valley bottom. The grade of the road along Iron Creek is quite steep where it passes the mine. This section of the road will be changed as per revision #1.



Revision # 1

Approximately 250 m past the mine the road crosses Iron Creek. Iron Creek at this location is quite wide and fast.

Iron Creek Crossing

After the road leaves the Iron Creek Crossing it travels along the flood plain on the north side of Sydney Creek for approximately 2.5 km before it crosses Sydney. The crossing is located among tall spruce trees over top of a coarse gravel creek bed. The creek is fairly wide and fast at this point.

The road through this area follows the flat for a short distance before it climbs up onto the bench along the north side of the creek. The road stays on the bench for approximately 1.5 km before it drops down to the valley floor prior to crossing Sydney Creek. At one location the entire road has been washed away due to erosion of the bank, although the washout has been bypassed with a trail wide enough for a pickup. The grades through this section are flat and the materials are silty gravels.

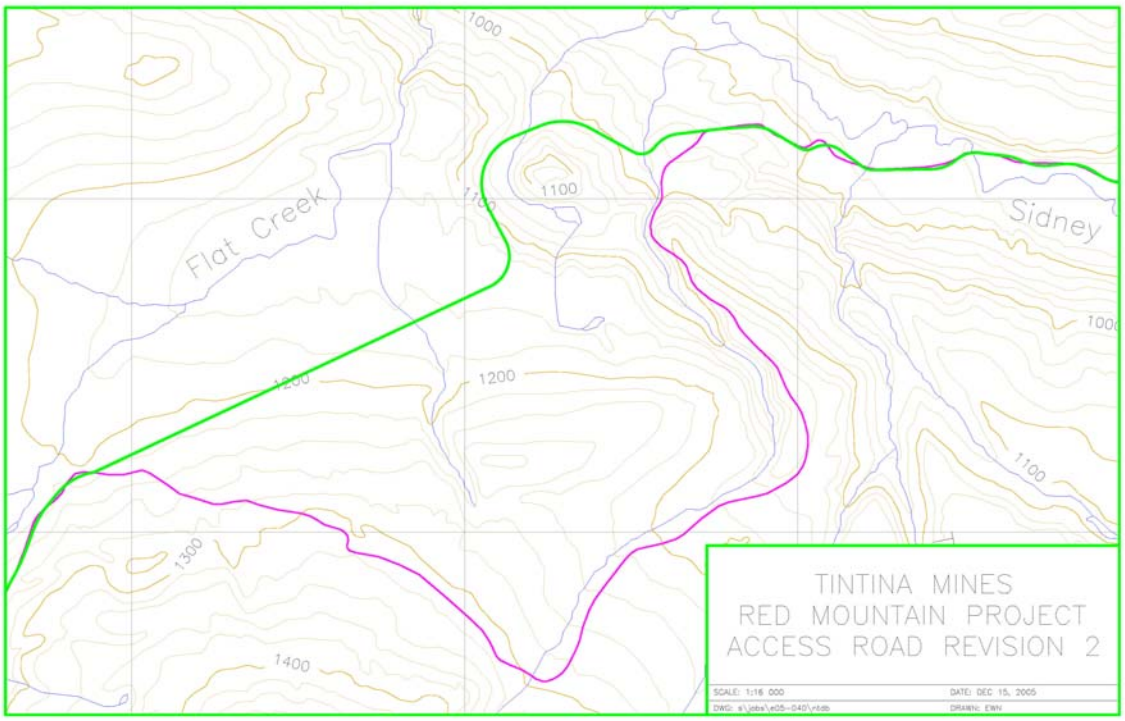
Sydney Creek Crossing

From the Sydney Creek crossing at km 19.75 the road travels another 700 m to Twin Creek. Twin Creek is easy to cross at the expected low water period of activity.

Twin Creek Crossing

Twin Creek Crossing

After leaving Twin Creek the road goes west for one kilometre before it turns south and starts to climb steeply at grades approaching 20% along the east side of an unnamed creek. This hill is steep enough that it provides a barrier to development and so will be by passed as part of revision #2. The revision will go directly south west from km 21, for approximately 4 km to join the original road at km 25 on the new road or km 28.5 on the old road. This revision is not permitted for access with heavy equipment, so the original road will be used to bypass it. Test holes through this area will be dug by hand for the first 2.5 km of the revision #2, with excavator access provided from the original road at the west end of the revision #2.



Proposed Route of Revision # 2

At km 29.0 the road turns south again and follows Flat Creek to the headwaters of an unnamed tributary of Hundred Mile Creek. The road then travels through a modest height of land before it starts down the north side of a steep and narrow valley. Along the sides of the valley the road is narrow with sharp corners.

At approximately km 34 the road crosses a small stream. This stream is small but flows quickly due to the steepness of the drainage area. This creek is not expected to present any difficulties to the project.

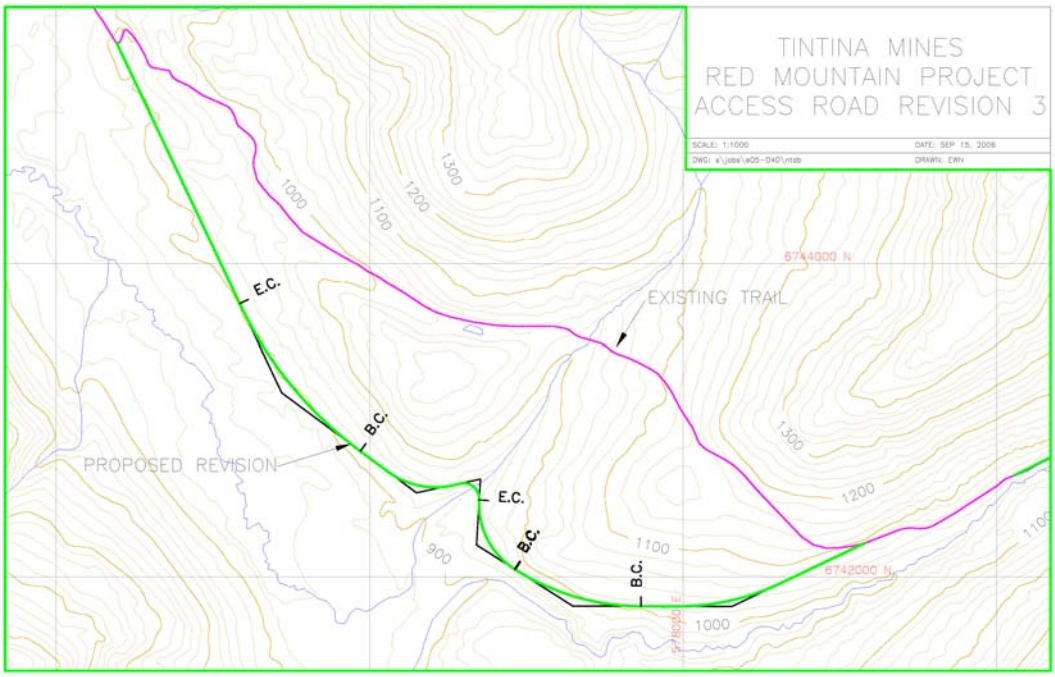
The side hill appears to consist of mostly coarse gravels covered by spruce, pine and poplar forest. Wetter areas are indicated by the presence of willows and buck brush. Along the lower stretches of this valley the overgrowth of willow, alder and poplar on the trail becomes quite thick. Difficulties were encountered during the summer to gain access through here on All Terrain Vehicles. Throughout the project the overgrowth will be piled separately from other materials in order that the trail may be reclaimed at some point in the future.

Overgrowth Along Hundred Mile Creek Tributary

The road leaves the steep valley at km 36.5. It turns to the right and takes a shortcut over the hill to get to the next creek crossing. The road along the south-facing slope is mostly side hill cut and appears to be solid, although wet and very overgrown. Once the road starts to descend to the next creek it becomes quite steep and travels through an area of permafrost. The permafrost area will be avoided by revising the road through that area.

The revision is 6.8 km long and will travel along a profile with grades flatter than that of the existing road. The initial part of the revision will travel through much the same type of ground as the previous sections of road, it will start on a side hill with spruce and poplar growth, with the side hill gradually levelling out where the new alignment approaches the wider Swift River Valley. As the road turns north it will encounter gravel along the southwest facing slope, and encounter pine trees and typically hilly glacial type terrain. The granular soils of the glacial terrain will provide a much more stable base for the road and will have a lower environmental impact than the existing route. Grades along the proposed route may be as high as 10%, although this will depend on the standards of the final road. Steep grades are easily flattened along the route, as they are all short enough to cut and fill easily. The entire proposed road is along the side hill with the exception of the creek crossing. This will provide for easy drainage. The creek is based in coarse glacial till which will provide a solid base for the future creek crossing structure.

The figure below indicates the route of the revision.



Proposed Route of Revision 3

Permafrost Sinkhole and Creek Crossing at km 38.5 of Original Trail

The proposed revision meets the original road for approximately 1 km along the east side of the Swift River Valley to an unnamed tributary of the Swift River. The creek valley is fairly deep and the road must descend down along the creek bank. The creek is meandering and there is no obvious crossing. This creek crossing verifies the geotechnical information, as it is based in gravel. The creek is fairly flat at this point and should provide no barriers to ice bridge construction.

Figure 1 C-8

After the road crosses this creek it travels along a side hill that has sloughed in and will have to be improved to allow geotechnical personnel to pass.

Km 43.8 Sidehill

From the km 43.5 crossing the road emerges on to the wider Swift River valley again. The road is close to the steeper side of the valley now and stays a long way away from the river. Overgrowth is fairly thick through this section.

Overgrowth near km 45

The road passes through some wet areas along this stretch, but the road is based in glacial till and should pose no troubles to the project. Dense vegetation is prominent and will need to be removed to allow passage of vehicles. There are a few hills through this section and it is mostly side hill travelling.

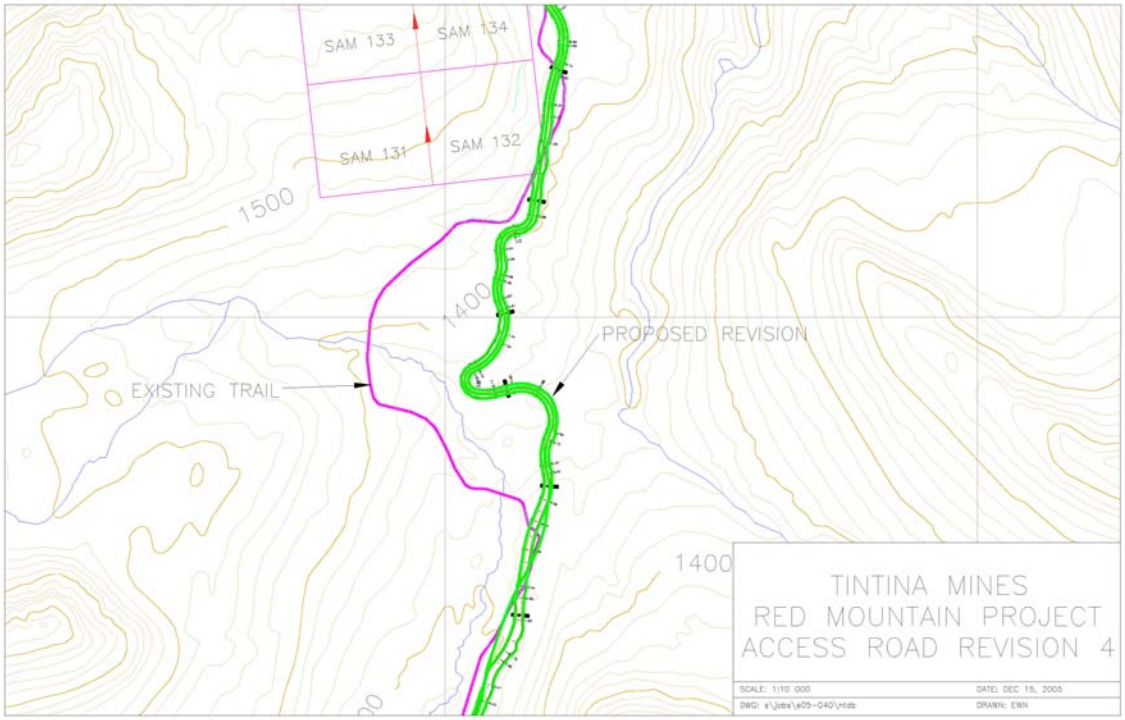
At km 47.0 the road leaves the Swift River Valley and turns directly north up an unnamed tributary of the Swift River. The road winds its way along the creek in an uphill direction traveling directly north. At km 48.5 the road crosses a minor swampy area, which has flowing water in the summer.

km 48.5

At km 49.7 the road crosses another stream just prior to a small lake at the side of the road. This lake was called Floatplane Lake because it was used to land supply planes to support the exploration activities at Red Mountain during the 1970's.

Floatplane Lake at km 50 Looking Northwest

After the road passes the small lake to the south of the road near km 50 the road passes over the divide of the rain shed and joins the east side of another tributary of the Swift River. At approximately km 52.2 the road crosses a small creek in a swampy area. This crossing is not expected to be difficult to cross. The road continues in a northerly direction to a wide and flat valley bottom. At this point the existing road turns northwest and crosses the valley. It crosses the creek and starts to climb on exposed solid rock for almost a km before it crosses the same creek again. In the interest of saving creek crossings this section will be bypassed with a revision from the original trail. The revision will be approximately 1.2 km long and will replace 2 km of original road. The new route will not cross any significant streams.



Km 55.3 Revision

Very close to the point where the old road is rejoined the road will enter Quartz claims owned by Tintina. The road continues over a rise of land and crosses a tributary to Red Mountain Creek at km 60.4. The banks are approximately 3 m high on the south side and 1.5 m high on the North side. Difficulties were encountered when crossing this creek with ATV's due to the steepness of the banks. A different crossing may need to be found or the banks of the creek may need to be lowered to allow vehicles to cross.

The north side of the creek climbs a fairly steep grade and winds along the side hill and over a rise of land for 2.5 km before dropping down to Chalco Creek. Chalco Creek is the site of the old Amoco Camp and is littered with barrels, junk and old collapsed buildings. Much of this will be hauled away on the trucks that will bring the camp and fuel to the site. Tintina is very concerned that the entire project be environmentally responsible and the cleanup of debris from previous operations be done as a part of this operation.

Chalco Creek should pose small difficulties to the access road testing project. This will be the end of the proposed Access Road.

Tintina Mines has constructed a 12 person camp at Chalco Creek which may be utilised by the contractor during the latter portion of the testing program. The contractor will be required to provide all consumables if the camp at Chalco Creek is utilised.

Statement of Qualifications:

I, Erik Nyland, of 7-5 Klondike Road, Whitehorse, Yukon, do hereby certify that:

a) I am a graduate of the University of Alberta (2003) with a Bachelor of Science in Civil Engineering;

b) I am a registered Professional Engineer in the Yukon Territory;

c) I have over 25 years of experience in road construction, mining and project management;

d) From 2000 to the present I have worked in the engineering field, mainly in road construction, where I have designed roads and mine surface works, managed road construction projects, and various studies;

e) I worked extensively on the Red Mountain Project and visited the site several times during the period October 30th, 2005 to October 30, 2006;

f) I authored this report; and

g) I have no financial interest and do not expect to receive any financial interest in the future with Tintina Mines Canada Ltd. or the Red Mountain lode mineral properties.

Erik Nyland, P.Eng.

REPORT NO: 8126-1
GEOTECHNICAL INVESTIGATION
PRELIMANARY REPORT
RED MOUNTAIN ACCESS ROAD
YUKON, 2006-2007

MARCH, 2007

HOGGAN ENGINEERING & TESTING (1980) LTD.
12A BURNS ROAD
WHITEHORSE, YUKON
Y1A 4Y9

REPORT NO: 8126-1
GEOTECHNICAL INVESTIGATION
PRELIMANRY REPORT
RED MOUNTAIN ACCESS ROAD
YUKON, 2006-2007

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GEOTECHNICAL INVESTIGATION

PROJECT: **Red Mountain Access Road**

LOCATION: **Yukon**

CLIENT: **TINTINA MINES LTD.**

Attention: Ricardo Colaci, C.E.T.

1.0 INTRODUCTION

This preliminary report presents a general summary of the geotechnical investigation conducted for the above noted project. *Hoggan Engineering & Testing (1980) Ltd*., in a geotechnical consultant capacity, has prepared the report as a part of the *Red Mountain Access Road Detailed Design* for *Tintina Mines Ltd.* It should be noted that this only a preliminary report and a much more detailed report will be provided in the near future.

The objective of the project was to collate and present geotechnical information, recommendations and analysis on material suitability, general rock information and any other geotechnical issues relating to construction of the proposed new roadway.

The new roadway extended approximately 65 kilometres west from approximately km 48 on South Canol Road, to the Red Mountain Mine Site. In addition, six (6) borrow source areas were investigated.

Authorization to proceed was received from Mr. Kevin Brewer of *Tintina Mines Ltd.* in October, 2006.

2.0 SUBSURFACE INVESTIGATION

2.1 Test Pit Program

The test pitting program was conducted from October 19th to December 16th, 2006 utilizing a (Volvo EC290) tracked excavator supplied by *Deadman Creek Enterprises.* A second track excavator (Kamatsu PC200LC) supplied by *Deadman Creek Enterprises* was added from December 11th to the 16th to expedite the project. The test pit locations were located at regular intervals of approximately 300 metres. This spacing was determined to insure representation of the changes in local topography. A total of two hundred and sixteen (216) test pits were advanced within the Red Mountain Access right-of-way, and thirty-seven (37) test pits were advanced within borrow source areas.

The proposed centerline had been marked out by *Yukon Engineering Services* and was utilized in conjunction with provided GPS coordinates to position our test pits.

During the program, all testpits were located horizontally and vertically utilizing a hand held GPS unit. Individual testpit locations are provided on the testpit soils logs and will be included in our final report.

2.2 Laboratory Program

During the test pitting program, a total of seven hundred and sixteen (716) disturbed samples were obtained at regular intervals from sample spill piles. Samples were bagged and returned to the laboratory for classification and moisture content determination. Sample testing has not been completed, to date three hundred and eighty-three (383) have been processed.

A total of four hundred and forty-three (443) samples were selected for grain size analysis. Sample testing has not been completed, to date two hundred and twenty-nine (229) have been processed.

Results from laboratory testing program will be presented on the test pit soil logs and the individual test summary sheets to be included in the final geotechnical report.

3.0 SUBSURFACE SOIL CONDITIONS

The following chapter generalizes the subsurface soil properties, as well as general geotechnical information related to the proposed roadway. The subsurface soil profiles and conditions will be included in detail on the individual test pit soil logs to be included in the final geotechnical report.

3.1 Subsurface Soil Units

Unit # 1 – Surficial Organics/Vegetation

Typical of forest floor cover, this unit was comprised of moss, rootlets and light vegetation with organic silts. Generally surfaces organics were 100 to 300 millimetres in depth with the exceptions of the low lying areas where the depths extended to 1000 to 1500 millimetres in depth.

Unit #2 - Silts

Generally, silt with varying amounts of sand and gravel. This unit was found to be damp to wet, brown to grey.

Unit # 4 – Glacial Till

Generally, a gravel, sand and silt mixture, with interbedded cobbles and large boulders, medium dense to very dense, damp and consistent both laterally and vertically throughout the test pits with slight to moderate variations in soil properties and/or composition.

Unit # 5 - Coarse Grained Deposits

These native materials are predominantly sand and sand/gravel mixtures that contain varying amounts of fines.

Unit # 6 – Rock

Rock encountered was found to vary from heavily weathered (as revealed by its orange/brown iron oxide staining) to intact.

3.2 Groundwater

Groundwater was encountered in a few test pits, generally when near visible surface water or stream/creek crossings. As well groundwater was noted on top of permanently frozen soils in the revision two area.

Standing water was visible within several areas during the test pit program. As our investigation was conducted late in the season, no distinct surficial drainage patterns for seasonal run-off and/or heavy rainfall were identified.

3.3 Ground Ice

Permanently frozen soils was encountered by *Hoggan Engineering & Testing (1980) Ltd.* during this field work program within the revision two section.

Seasonal frost penetration would be variable on this site as a result of the variable ground and site conditions. Accurate determinations of season frost depths are not possible given the wide variation in contributing factors.

4.0 RECOMMENDATIONS

Detailed recommendations for roadway construction will be included in *Hoggan Engineering & Testing (1980) Ltd.* final geotechnical report.

We trust the information presented herein is suitable for your purposes at this time. If you should have any questions or comments, please feel free to contact the undersigned.

Sincerely,
Hoggan Engineering & Testing (1980) Ltd.

Murray Debler
Office Manager

Reviewed by,

Wilbur (Bud) C. Kofoed, M.Eng., P.Eng.
Senior Project Engineer

MD/md

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Preliminary

Geotechnical, Geophysical and Hydrogeological Site Investigation for Advanced Exploration/Development With Archeology Of the Red Mountain Project

by

Randy Clarkson, P.Eng
New Era Engineering Corporation
Whitehorse, Yukon

for

Tintina Mines Limited

Report Type: Evaluation/Environmental
Claim Groupings: 1 through 12
Claim Sheets: 105C13 and 105F04
Property Location: 60-59'N, 133-44' W
Claim Holder: Tintina Mines Limited
District: Whitehorse

April 2007

Field Work completed
November 2005-October 2006

1.0 Summary

The Red (Slate) Mountain Project is an advanced underground molybdenum exploration project about 50 km northeast of Whitehorse, Yukon, Canada (figures 1 and 2). The deposit has been extensively drilled by Amoco Petroleum Ltd. and others. Thirty deep diamond drill holes (many greater than 1000 m depths) were completed by Amoco in 1979-1982 (Figure 8). Following the completion of the 1982 work, it was apparent that additional exploration from surface would not materially contribute to improving the understanding of the deposit or to ore reserve estimates. Underground development at depth would be required to facilitate any future work, provide an opportunity for obtain bulk samples, and allow underground definition drilling with shorter holes.

The best MoS2 grades (>0.2%) were obtained at depth, starting at the 1200 meter (geodetic) elevation which is about 400 m below the peak of Red Mountain (Figure 10). Any underground access ramp would be lengthy (> 3000 m long) expensive, and should be designed to best meet the needs of future development of the deposit. Any ramp will be have to transport equipment, men and materials (and possibly ore and waste) into and out of the mine and should be located as close as practical to potential future ore processing and tailings treatment facilities.

The geology and characteristics of the various rock types near the deposit (monzonite porphyry, hornfels and quartz-eye diorite dike) have been identified and are easy to examine from the existing Amoco drill core (photos 20-25). However, most of the surrounding rock types have only been sampled at surface outcrops which are usually heavily faulted/fractured and/or badly decomposed by oxidization. Many of the rock types surrounding the deposit and hornfel halo (shales, schists) are weak rock types which have also been heavily faulted and fractured. Major faults through the deposit appear to have displacements of over 300 m (Sabag, 1992). The cost of underground development in weak and fractured rock can be prohibitively expensive, slow and problematic. In addition, there are mine safety issues regarding ground support of underground development headings and stopes; ventilation requirements for diesel equipment; and requirements for emergency egress to surface.

Special consideration needs to be given to potential acid rock drainage (ARD) problems and dissolved metals from any waste rock storage piles or underground and surface openings. Perpetual treatment of acid mine water should be avoided where possible to ease permitting and reduce long term bonding requirements.

Several decline options were proposed including:

1) Boswell River Option – A 3200 m long decline @ 15% starting near the Boswell River on the north side of Red Mountain and continuing southwest and arriving at the north edge of the deposit at a elevation of 501 m;

2) Chalco Creek Option - A 920 m long decline originating on the south side of Red Mountain above Chalco Creek at the 1,450 m elevation and continuing northeast to the south side of the deposit at an elevation of 1312 m. A crosscut across the top of the deposit and spiral ramp would be required to access lower levels ; and

3) Drill Camp Option - A spiral ramp originating on the north side of Red Mountain just above the Amoco Drill Camp at the 1450 elevation in and continuing downwards for 5,480 m to the 628 elevation (or 4,000 m to the 850 m elevation) at the north edge of the deposit in the quartz-eye diorite dike.

See figures 13-19 and section 12 for a detailed explanation of the portal options considered.

The work completed included a geophysical survey to determine the dips of major faults, field and desktop assessment of surficial geology, preliminary field hydrogeological investigations, preliminary geotechnical surface and underground stability evaluations and a review of relevant diamond drill hole data from previous exploration for assessing underground development options. In cold weather and difficult field conditions only one diamond drill hole (06-31) was drilled near the proposed collar of the Chalco Creek portal option and another hole (81-24) was redrilled to 125 m depth. Several more holes were scheduled to be drilled to assess hydrogeology and structural strength of bedrock in various locations but the driller was unable to complete them. Pumping and packer tests and other measurements were conducted on all locatable drill holes; ground springs were located to help estimate the ground water elevation and flows. The author has inspected and dug test pits to evaluate several areas noted for potential portal locations, mill sites, tailings dams and airstrips (figure 12).

Geophysical investigations appear to confirm that the major faults near the deposit are steeply dipping (see appendix B, M. Powers 2006).

An Archeology Study was also completed by C.D.Thomas, 2006, (appended). Mr. Thomas identified several areas with high potential for the presence of historical sites but did not assess them because Tintina Mines does not intend to develop these areas.

2.0 Conclusions

The drilling and hydrogeological field program is not complete, however, the information reviewed and collected to date suggest that the Drill Camp is the best of the three portal options considered based on rock quality and the hydrogeological conditions (figures 14 & 16-19, photos 5-13). The top of the mountain above the Drill Camp portal appears to be in permafrost and is unlikely to generate significant quantities of ground water (potentially acidic or otherwise). The ramp could collared above the known ground water level and be driven a very competent fault-bounded column of quartz-eye diorite (the most competent block of rock in the area, figures 16-19). This development scheme would most likely be the easiest to permit and require the least bonding. However, further drilling should be conducted to examine the rock and hydrological conditions in more detail.

The rock quality and groundwater conditions on the potential Chalco Decline alignment are not favorable based on the drilling results at DDH 06-31. The ground water level is slightly higher at the potential Chalco Creek portal (1502 vs. 1374 m at the Amoco Drill Camp) and the host rock is very fractured shale with rock qualities generally less than 25% RQD. Ground conditions between the proposed portal and the deposit are unknown except from surface mapping which indicates similar (poor quality) rock types. In addition, any development in this area would have to pass through the major northwest/southeast trending Chalco Creek Fault Zone. This is unfortunate because the best mill and tailings pond sites are near Chalco Creek (see section12, figure 14, photos 14-18 for further details).

No intrusive investigations were completed to evaluate the Boswell Portal option, however, it considered the least favorable option. The decline would be very long, cross a large area of potential drainage with unknown rock types and be located well below the existing ground water elevation on Red Mountain (figures 13 & 15). Therefore it would most probably produce water at much higher rates of inflow and higher pressures for the entire operational life cycle of the mine (i.e., decline construction, mine construction and mine operation). The higher water flow would require a greater effort and be more expensive to collect, convey, store and treat the mine water.

To obtain a water license it would be necessary to estimate the rock quality, hydrogeologic conditions and rate of water inflow to the Boswell decline. Due to the long length and depth of the decline this would be a very expensive exercise. Unless the portal was effectively plugged during mine closure, the Boswell Creek decline would be a perpetually draining mine working. Based on the rock types and high degree of faulting in the area it would probably be very difficult to seal at the end of the mine's life. It would be very difficult to obtain permitting for a decline in potentially acid generating rock which would require perpetual treatment as this is contrary to the reclamation policy currently in placer by the government of Yukon.

3.0 Recommendations

The drilling and hydrogeological testing program was not completed due to harsh winter conditions and extenuating circumstances, and hence much of the rock quality and hydrogeological information necessary to fulfill the objectives could not be collected. Additional work is necessary to characterize the hydrogeology and confirm rock qualities:

a) Complete the re-entry and reaming of ice in one diamond drill hole near the top of Red Mountain to establish permafrost conditions and the high groundwater elevation (expected to be confined below the permafrost). It may be more cost-effective to ream DDH 81-27 that is 70 m to the southeast and at a similar elevation and aspect on the mountain, rather than to continue on the existing hole;

b) Complete drilling a minimum of two holes – at least one to confirm the rock quality in the fault-bounded column of quartz-eye diorite (to be located south of 80-18 and east of 80-17A) and at least one to determine the width and ground conditions to be encountered when crossing the "Plug Fault" with future development headings;

c) Analyze the existing samples and samples from future drilling for acid-base and metal leaching test work;

d) Retrieve the data logger from DDH 80-18, and analyze data;

e) Complete sites for the determination of ground water elevation, background water quality, long term monitoring;

f) Complete packer testing, pumping tests and groundwater chemistry analysis;

g) Develop a conceptual hydrogeological model with a water balance;

h) Complete more detailed geotechnical assessments of tailings ponds, mill sites and PAG waste rock storage sites in the Amoco Drill Camp area using drilling and/or sample pits with expert analysis;

i) Upgrade Amoco ore reserve estimates to be compliant with National Instrument 43-101;

j) Undertake a prefeasibility study to assure economic viability of project; and

k) Ensure the site is developed or reclaimed according to permit requirements.

Randy Clarkson P.Eng.

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26) Chalco Creek Camp with Portal Sight to the North

4.0 Objectives

The primary objective of the program was to review and interpret existing information and gather additional preliminary physiographic, soils, permafrost, hydrogeological and rock quality information to support the selection of a portal decline option for subsequent advanced exploration. The secondary objective was to obtain background information suitable for a water license application and other regulatory permits.

In detail the objectives were to:

a) To examine the physiography of the Red Mountain area, look for evidence of ground water seepage, and determine the ground water elevation and bedrock quality conditions at three potential portal sites and their decline alignments;

b) To examine areas suitable for the construction of PAG waste rock storage sites, a mill building, mine camp, tailings ponds and other infrastructure near the best potential portal site;

c) To obtain samples of bedrock where required for acid-base test work;

d) To provide sites for the determination of ground water elevation, background water quality, long term monitoring;

e) To develop a conceptual hydrogeological model with a water balance; and

f) To conduct a hydrogeological and ARD/ML testing program that will attempt meet all regulatory reporting requirements and assist in mine planning and underground development.

5.0 Location, Access and Weather

Red (Slate) Mountain is situated in the rugged Big Salmon Mountain Range about 15 km east of the Teslin River in south-central Yukon Territory. The mountain is at latitude 60-59' north and longitude 133-44' west and is 1702 meters tall at its peak with tree line at 1405 meters. Vegetation consists mainly of stunted alpine fire and black spruce. The mountain is well known for its bright red oxidized steep slopes on its summit areas and southeast flank facing Chalco Creek (photos 2-5). The north flank slopes downward towards the Boswell River (3 km) at a shallower slope.

The Red Mountain Project is located about 50 km by air northeast of Whitehorse. Air access is by helicopter, a remote airstrip 10 km northwest of the project near the Boswell River, a winter only airstrip near Chalco Creek (photo 19), or float plane/helicopter ferry from Rosy Lake 11 km to the southwest. The Boswell River gravel airstrip has a curve and can accommodate Otter and similar or smaller aircraft only. In poor weather such as light fog, the area can be accessed by helicopter via number of longer routes including via the McClintock River drainage at Marsh Lake. High winds in the rugged terrain can limit potential helicopter landing sites especially on the leeward side of the mountain.

Land access is currently winter-only via the existing 72 km long Amoco winter trail which leads from kilometer 42 of the Canol Road. The Canol Road has a junction (kilometer zero) with the Alaska Highway at a point 134 km east of Whitehorse (figure 1). Generally the Canol Road is not maintained in the winter. In the past Amoco used cat trains to move heavy equipment, drills, fuel and supplies over this trail (1978-1982). This winter of 2006/2007 the Amoco trail was reopened by Tintina mines for a geotechnical evaluation of a proposed all weather gravel access road (Clarkson 2007). Amoco used a D7 Caterpillar tractor to construct trails move its diamond drills around the property (1978-1982). Tintina Mines used a helicopter to ferry a drill (broken down to basic components) to various sites in 2006 as there was no heavy equipment on site.

From October onward, heavy snow wintery conditions prevail with temperatures in the -25 C to -40 C range. The area is very windy with some fierce storms occurring throughout the year. A storm in November, 2006 destroyed a "weatherproof" portable shelter and temporarily suspended drilling operations on the north side of the mountain. Summit areas can be wind swept bare of snow and have large cornices. Avalanche conditions occur on the southeast flank of Red Mountain and periodically block the main access trail.

Spring breakup occurs in late April or early May with very high freshet water flows in the streams. Summer temperatures are mild with daytime highs of about 10-18 C. Without careful provision, adverse weather, especially at higher elevations could impede both development and production at the mining project.

Figure 1 – Location of Red Mountain Project
(from Brown P., and Kalert B., 1983)

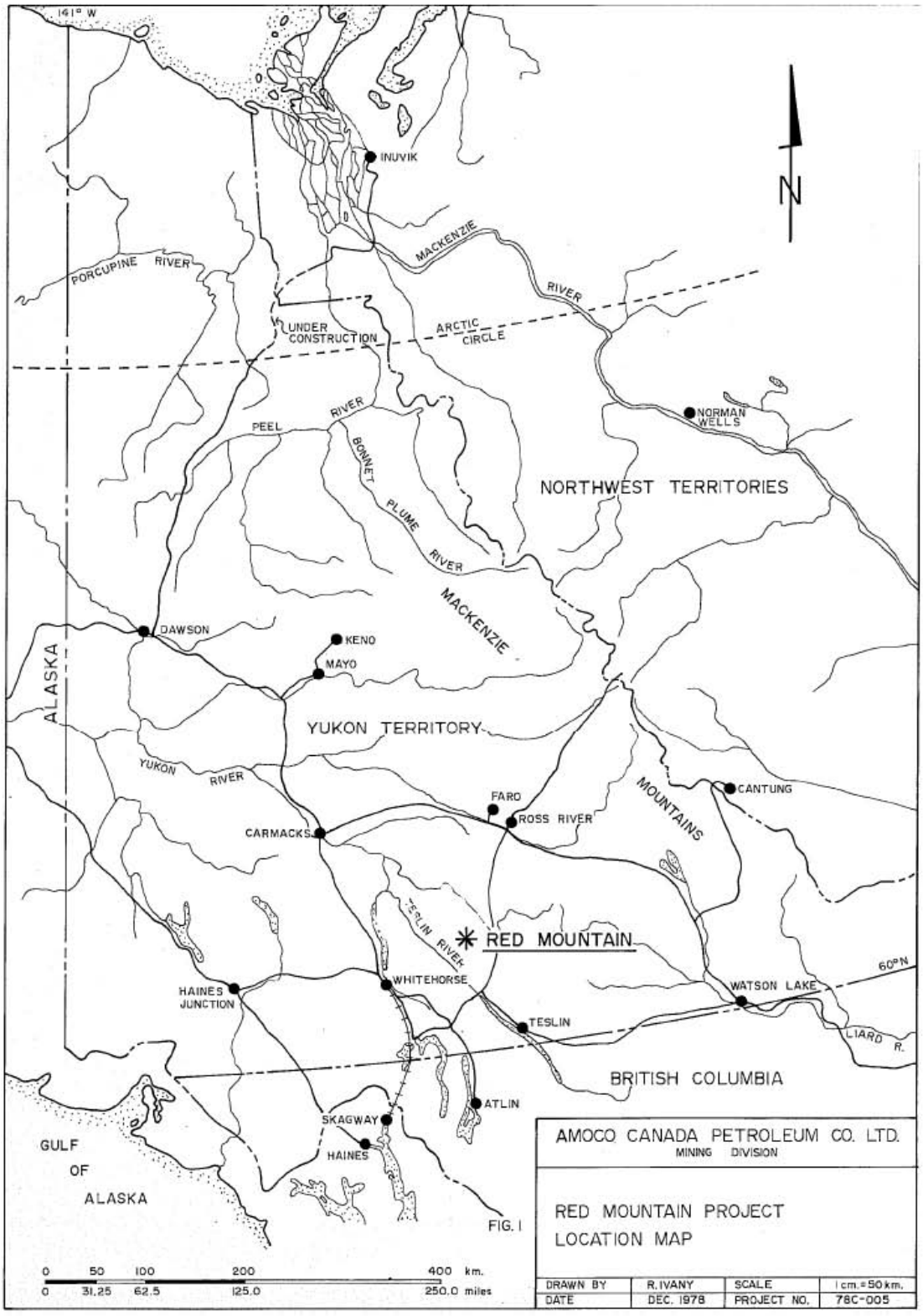
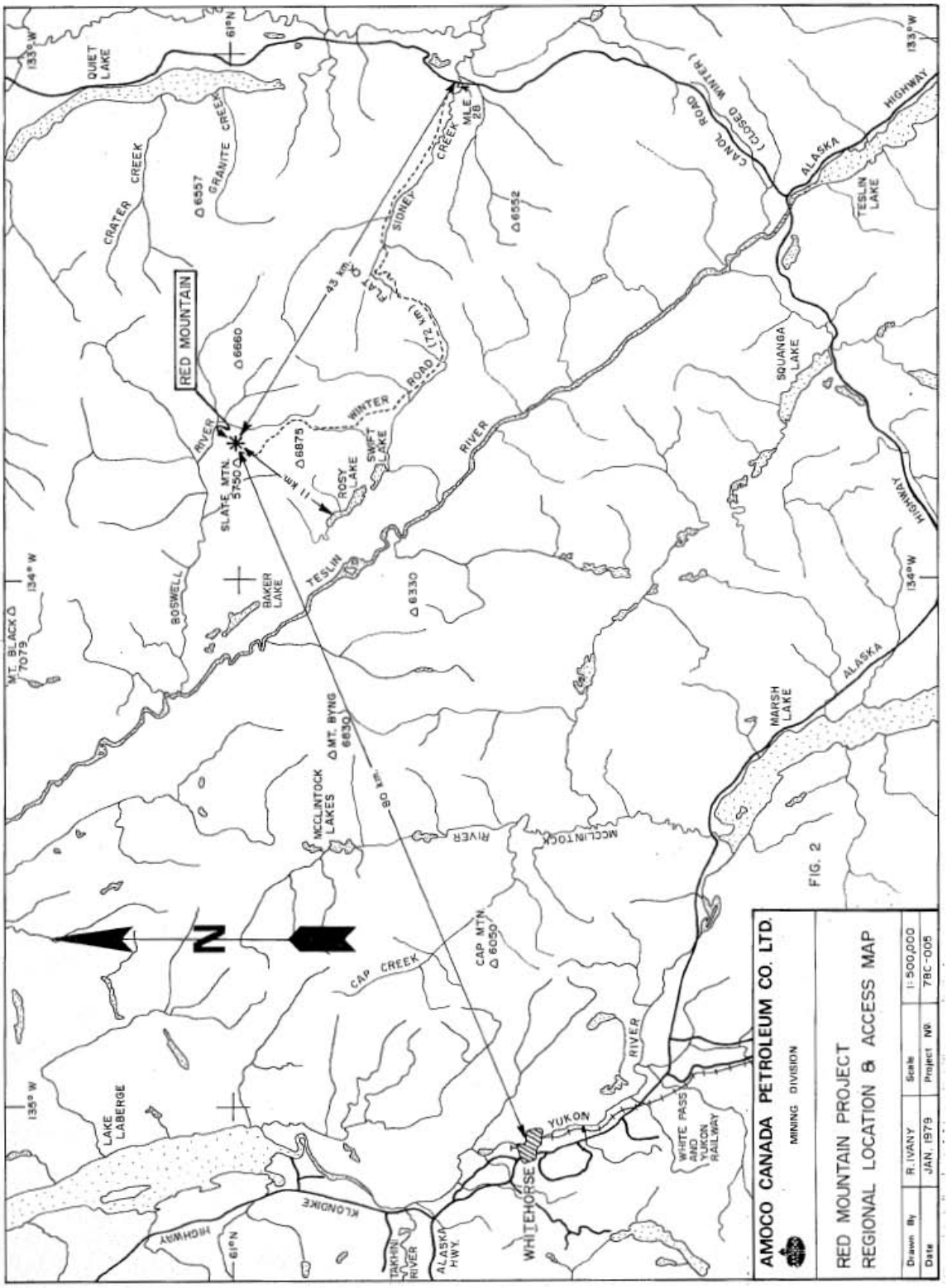


Figure 2 – Detailed Location of Red Mountain Project
(from Brown P., and Kalert B., 1983)



6.0 Mineral Titles

The Red Mountain Project consists of 208 contiguous “quartz” claims owned 100% by Tintina Mines Canada Ltd. The claim block surrounds the peak of Red Mountain, drops down to the Boswell River on the north, drops down to Chalco Creek and continues well past on the south. Red Mountain creek forms a rough border to the east (figure 3). The claims were grouped in October 2006 by Kevin Brewer (the former project manager) into 12 groupings plus the SAM 1 and 2 groups, and with 7 claims outside of the group paid in lieu of assessment work. This assessment report is for claims in groups 1 through 12.

Table 1 – Claim Groupings

Group 1 –

Grant Number	Claim		Group	Grant Number	Claim		Group
Y 99304	BUG	9	1	YC19775	SAM	102	1
Y 99305	BUG	10	1	YC19777	SAM	104	1
YC19757	SAM	84	1	YC19779	SAM	106	1
YC19758	SAM	85	1	YC19784	SAM	113	1
YC19765	SAM	92	1	YC19785	SAM	114	1
YC19767	SAM	94	1	YC19786	SAM	115	1
YC19771	SAM	98	1	YC19814	SAM	155	1
YC19773	SAM	100	1	YC19841	SAM	185	1

Group 2 –

Grant Number	Claim		Group	Grant Number	Claim		Group
Y 98584	BUG	2	2	YC19769	SAM	96	2
YC19755	SAM	82	2	YC19772	SAM	99	2
YC19756	SAM	83	2	YC19774	SAM	101	2
YC19759	SAM	86	2	YC19776	SAM	103	2
YC19761	SAM	88	2	YC19778	SAM	105	2
YC19763	SAM	90	2	YC19782	SAM	111	2
YC19766	SAM	93	2	YC19783	SAM	112	2
YC19768	SAM	95	2	YC19833	SAM	177	2

Group 3 –

Grant Number	Claim		Group	Grant Number	Claim		Group
Y 98583	BUG	1	3	Y 99311	BUG	16	3
Y 98585	BUG	3	3	YA22254	GUB	46	3
Y 98586	BUG	4	3	YC19725	SAM	52	3
Y 98587	BUG	5	3	YC19748	SAM	75	3
Y 98588	BUG	6	3	YC19750	SAM	77	3
Y 98590	BUG	8	3	YC19753	SAM	80	3
Y 99309	BUG	14	3	YC19754	SAM	81	3

Group 4 -

Grant Number	Claim		Group
YC19760	SAM	87	4
YC19762	SAM	89	4
YC19764	SAM	91	4
YC19770	SAM	97	4
YC19781	SAM	110	4
YC19821	SAM	165	4
YC19823	SAM	167	4
YC19825	SAM	169	4
YC19831	SAM	175	4
YC19834	SAM	178	4
YC19835	SAM	179	4
YC19836	SAM	180	4
YC19837	SAM	181	4
YC19838	SAM	182	4
YC19839	SAM	183	4
YC19840	SAM	184	4

Group 5 -

Grant Number	Claim		Group
YA22209	GUB	1	5
YA22210	GUB	2	5
YC19696	SAM	21	5
YC19697	SAM	22	5
YC19743	SAM	70	5
YC19745	SAM	72	5
YC19746	SAM	73	5
YC19747	SAM	74	5
YC19799	SAM	134	5
YC19801	SAM	136	5
YC19803	SAM	138	5
YC19805	SAM	140	5
YC19807	SAM	142	5
YC19809	SAM	144	5
YC19811	SAM	146	5
YC19813	SAM	148	5

Group 6 –

Grant Number	Claim		Group
Y 99308	BUG	13	6
YC19749	SAM	76	6
YC19751	SAM	78	6
YC19752	SAM	79	6
YC19819	SAM	163	6
YC19820	SAM	164	6
YC19822	SAM	166	6
YC19824	SAM	168	6
YC19826	SAM	170	6
YC19827	SAM	171	6
YC19828	SAM	172	6
YC19829	SAM	173	6
YC19830	SAM	174	6
YC19832	SAM	176	6

Group 7 –

Grant Number	Claim		Group
YC19742	SAM	69	7
YC19744	SAM	71	7
YC19796	SAM	131	7
YC19797	SAM	132	7
YC19798	SAM	133	7
YC19800	SAM	135	7
YC19802	SAM	137	7
YC19804	SAM	139	7
YC19806	SAM	141	7
YC19808	SAM	143	7
YC19810	SAM	145	7
YC19812	SAM	147	
YC19815	SAM	159	7
YC19816	SAM	160	7
YC19817	SAM	161	7
YC19818	SAM	162	7

Group 8 –

Grant Number	Claim	Group		Grant Number	Claim	Group	
YA22250	GUB	42	8	YC19843	SAM	187	8
YA23648	GUB	65	8	YC19844	SAM	188	8
YA23649	GUB	66	8	YC19845	SAM	189	8
YC19728	SAM	55	8	YC19846	SAM	190	8
YC19729	SAM	56	8	YC19847	SAM	191	8
YC19730	SAM	57	8	YC19848	SAM	192	8
YC19731	SAM	58	8	YC19849	SAM	193	8
YC19842	SAM	186	8	YC19741	SAM	68	8

Group 9 –

Grant Number	Claim	Group		Grant Number	Claim	Group	
YC19717	SAM	42	9	YC19788	SAM	117	9
YC19718	SAM	43	9	YC19789	SAM	118	9
YC19719	SAM	44	9	YC19790	SAM	119	9
YC19720	SAM	47	9	YC19791	SAM	120	9
YC19721	SAM	48	9	YC19792	SAM	121	9
YC19732	SAM	59	9	YC19793	SAM	122	9
YC19733	SAM	60	9	YC19794	SAM	123	9
YC19787	SAM	116	9	YC19795	SAM	124	9

Group 10 –

Grant Number	Claim	Group		Grant Number	Claim	Group	
Y 99307	BUG	12	10	YC19683	SAM	8	10
YC19676	SAM	1	10	YC19684	SAM	9	10
YC19677	SAM	2	10	YC19685	SAM	10	10
YC19678	SAM	3	10	YC19698	SAM	23	10
YC19679	SAM	4	10	YC19699	SAM	24	10
YC19680	SAM	5	10	YC19701	SAM	26	10
YC19681	SAM	6	10	YC19703	SAM	28	10
YC19682	SAM	7	10	YC19705	SAM	30	10

Group 11 –

Grant Number	Claim	Group	
Y 99306	BUG	11	11
YC19686	SAM	11	11
YC19687	SAM	12	11
YC19688	SAM	13	11
Grant Number	Claim	Group	
YC19700	SAM	25	11
YC19702	SAM	27	11
YC19704	SAM	29	11
YC19706	SAM	31	11
YC19689	SAM	14	11
YC19690	SAM	15	11
YC19691	SAM	16	11
YC19707	SAM	32	11
YC19708	SAM	33	11
YC19709	SAM	34	11
YC19710	SAM	35	11
YC19711	SAM	36	11

Group 12 –

Grant Number	Claim	Group	
Y 98589	BUG	7	12
YA22252	GUB	44	12
YC19716	SAM	41	12
YC19722	SAM	49	12
YC19723	SAM	50	12
YC19724	SAM	51	12
YC19726	SAM	53	12
YC19727	SAM	54	12
Grant Number	Claim	Group	
YC19734	SAM	61	12
YC19735	SAM	62	12
YC19736	SAM	63	12
YC19737	SAM	64	12
YC19738	SAM	65	12
YC19739	SAM	66	12
YC19740	SAM	67	12

Groups SAM1 and SAM 2 (filed previously by Kevin Brewer)

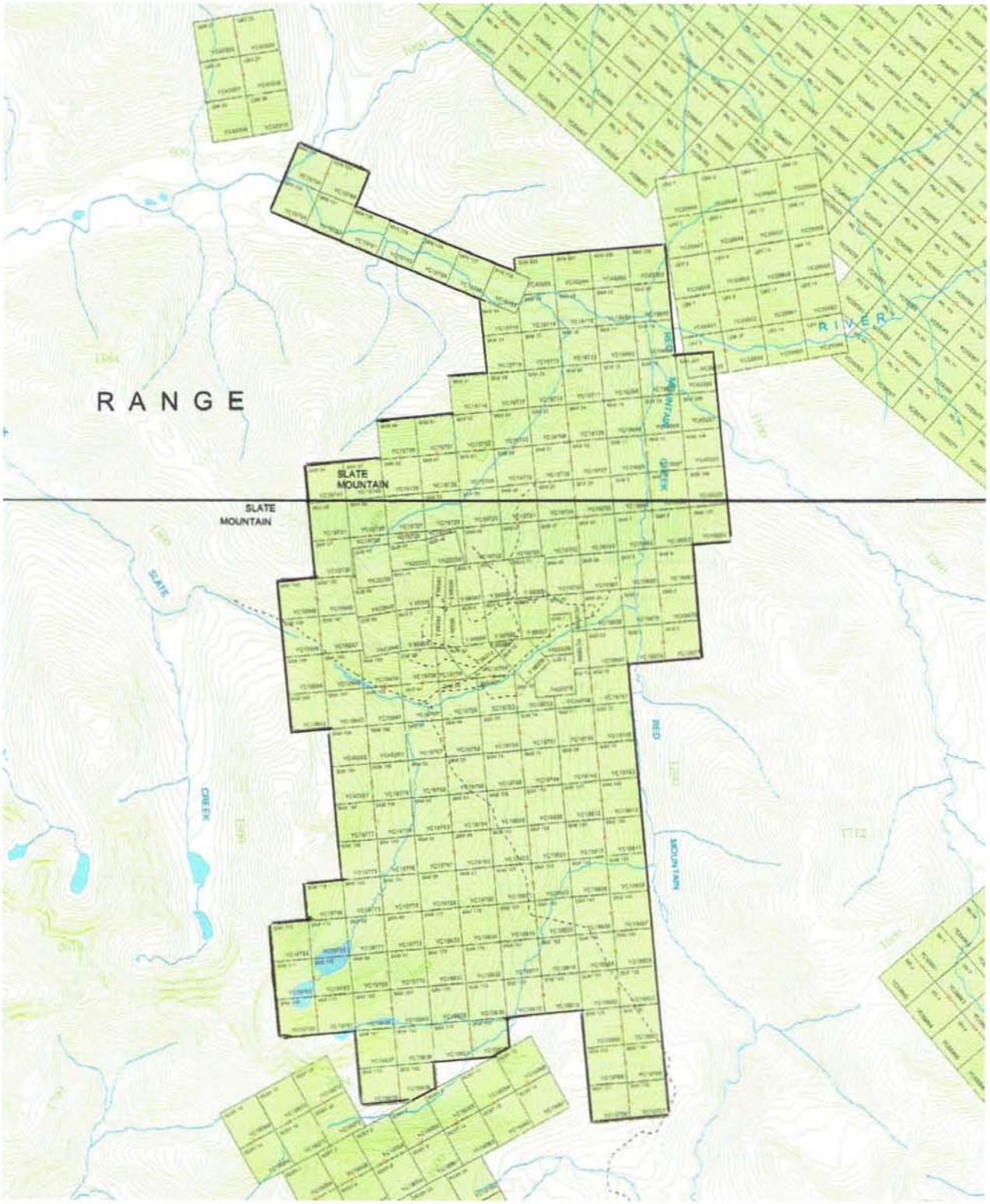
Grant Number	Claim	Group	
YC19693	SAM	18	SAM 1
YC19695	SAM	20	SAM 1
YC40284	SAM	197	SAM 1
YC40285	SAM	198	SAM 1
YC40286	SAM	199	SAM 1
YC40287	SAM	200	SAM 1
YC40288	SAM	201	SAM 1
YC40292	SAM	205	SAM 1
Grant Number	Claim	Group	
YC40293	SAM	206	SAM 1
YC40294	SAM	207	SAM 1
YC40295	SAM	208	SAM 1
YC40281	SAM	194	SAM 2
YC40282	SAM	195	SAM 2
YC40283	SAM	196	SAM 2

Claims Paid in Lieu of Work

Grant Number	Claim		
YC19692	SAM	17	PIL
YC19694	SAM	19	PIL
YC19712	SAM	37	PIL
Grant Number	Claim		
YC19713	SAM	38	PIL
YC19714	SAM	39	PIL
YC19715	SAM	40	PIL
YC19780	SAM	109	PIL

Of the 208 claims, approximately 10 claims directly overlie the deposit.

Figure 3 – Plan of Quartz Claims on Red Mountain
Map Sheets 105C13 and 105F04



7.0 Exploration History

The earliest exploration in the area dates back to 1915 and was concentrated on silver-lead showings within the sediments of the Big Salmon Complex. In 1936 the GSC (1936) noted an adit and several open cuts north of the property. During 1966-67 Boswell River Mines staked 396 claims surrounding Red Mountain and completed geophysical and geochemical surveys. In 1968, a geochemical survey discovered a strong northwest trending molybdenum anomaly over Red Mountain. In 1969, Boswell River Mines constructed a road to the property from the Canol Road and drilled 16 holes (totaling 3,126 m) which intersected several low-grade molybdenite zones, the best of which was drill hole F-1 which assayed 0.084% over 54 m. The claims were allowed to lapse and then restaked again in 1971, geologically mapped and allowed to lapse again. In 1975 R.G. Hilker restaked the claims and sold them to Tintina Mines Ltd. in 1976.

In 1977, Amoco Canada Petroleum Company Ltd. (Amoco) optioned the property from Tintina and completed detailed geological mapping, surface and rock geochemical surveys, geophysical surveys, ortho photography, land surveys, metallurgical work and drilled 32 holes totaling 21,391 m. Due to weak molybdenum markets no further work was conducted until 2006.

8.0 Geological Setting

The Red Mountain intrusive complex is a molybdenum porphyry breccia system hosted within a quartz monzonite porphyry stock which intruded into northwest trending argillaceous sediments. The deposit is a steeply-dipping, oval shaped, northwest trending intrusive complex with overall dimensions of 1450 m by 650 m (figures 4 &16). Deep drilling (~ 1000 m) indicated increase grades of molybdenum with depth and the deposit is open at depth (Sabag, 1992, figures 5 & 6).

Resources calculated in1983 (pre National Instrument 43-101) include drill indicated possible resources of 187 million tones at 0.17% MoS_2 at a 0.10% cutoff. This included a steeply plunging core of higher grade material (>0.2 % MoS_2) 300 to 800 meters below surface surrounded by a widespread shell of lower grade (0.05 to 0.15% MoS_2).

Molybdenite mineralization occurs within the quartz monzonite porphyry core and within the surrounding hornfels. In the monzonite, molybdenum occurs mainly as fine grained disseminations within quartz stock work veins less than 1 cm in width and is associated with pyrite. In the hornfels, molybdenum occurs also as parallel bands within quartz veins such as coatings on fractures and massive seams up to six mm thick. Minor chalcopyrite, galena and sphalerite have been noted. There is also a peripheral zone of pyrite with local pyrite contents of up to 10%.

Figure 4 – Red Mountain Generalized Geology (Sabag 1992)

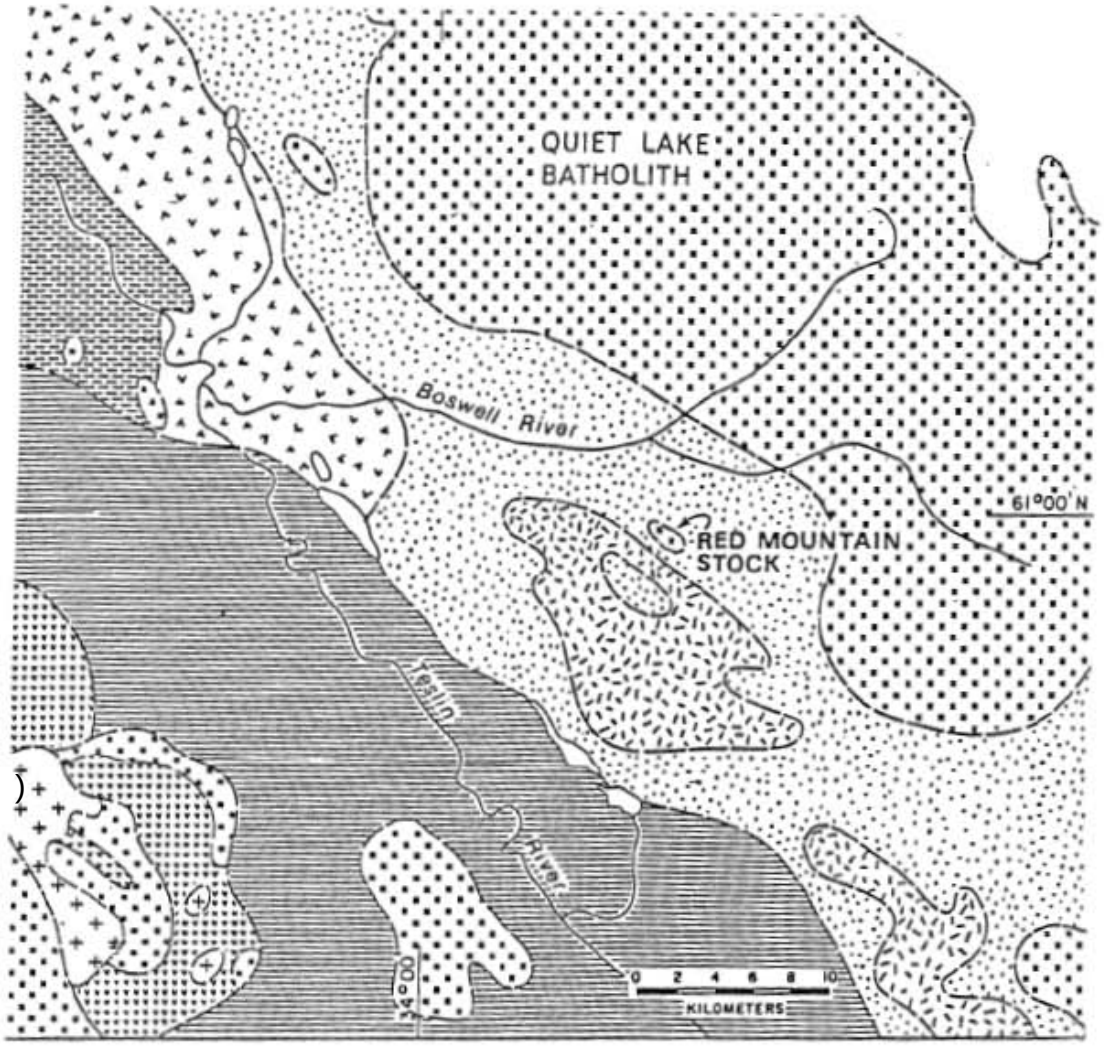


Figure 5 – Red Mountain Property Geology (Sabag 1992)

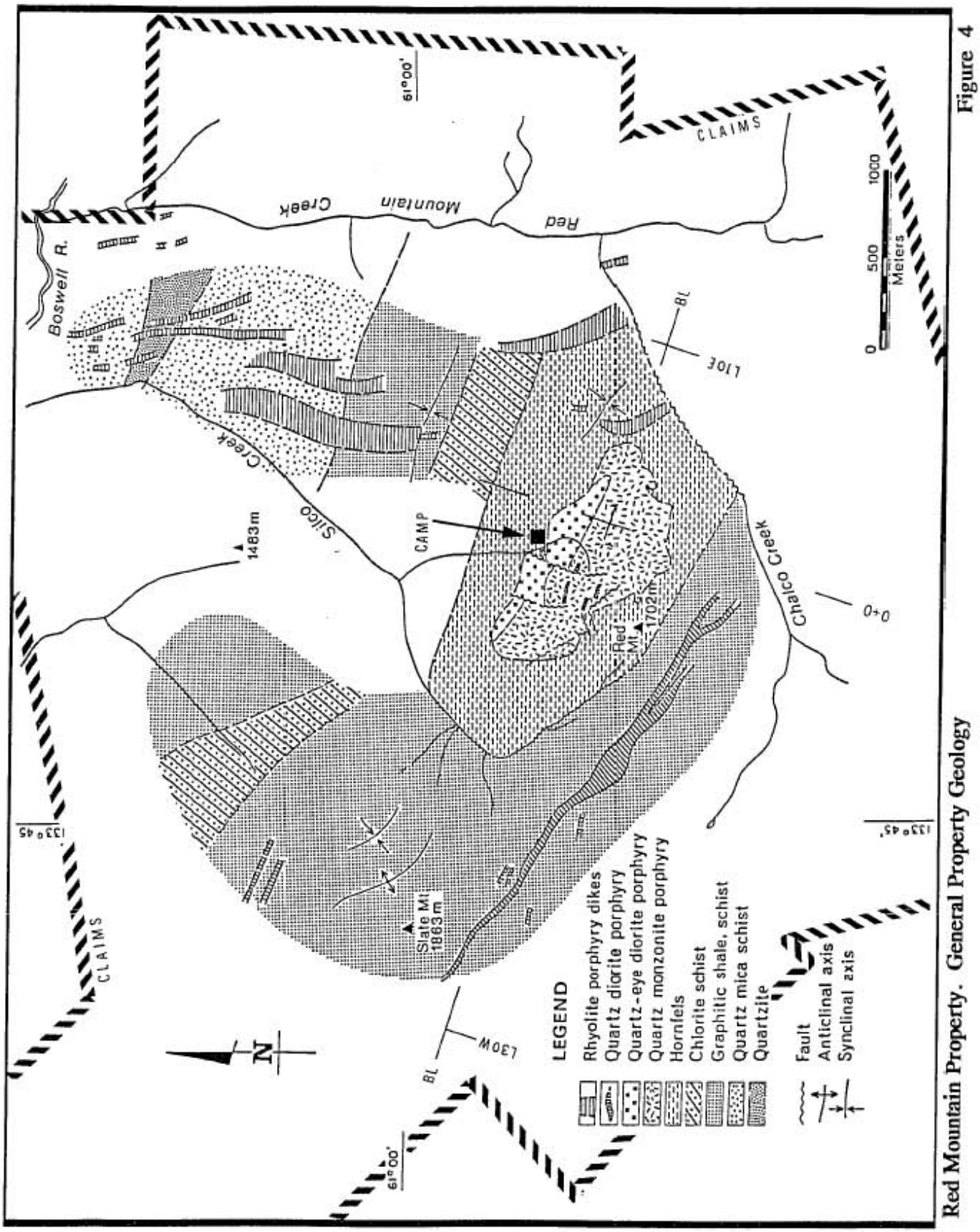


Figure 6 – Longitudal Section of Red Mountain Deposit (Brown P, 1982)

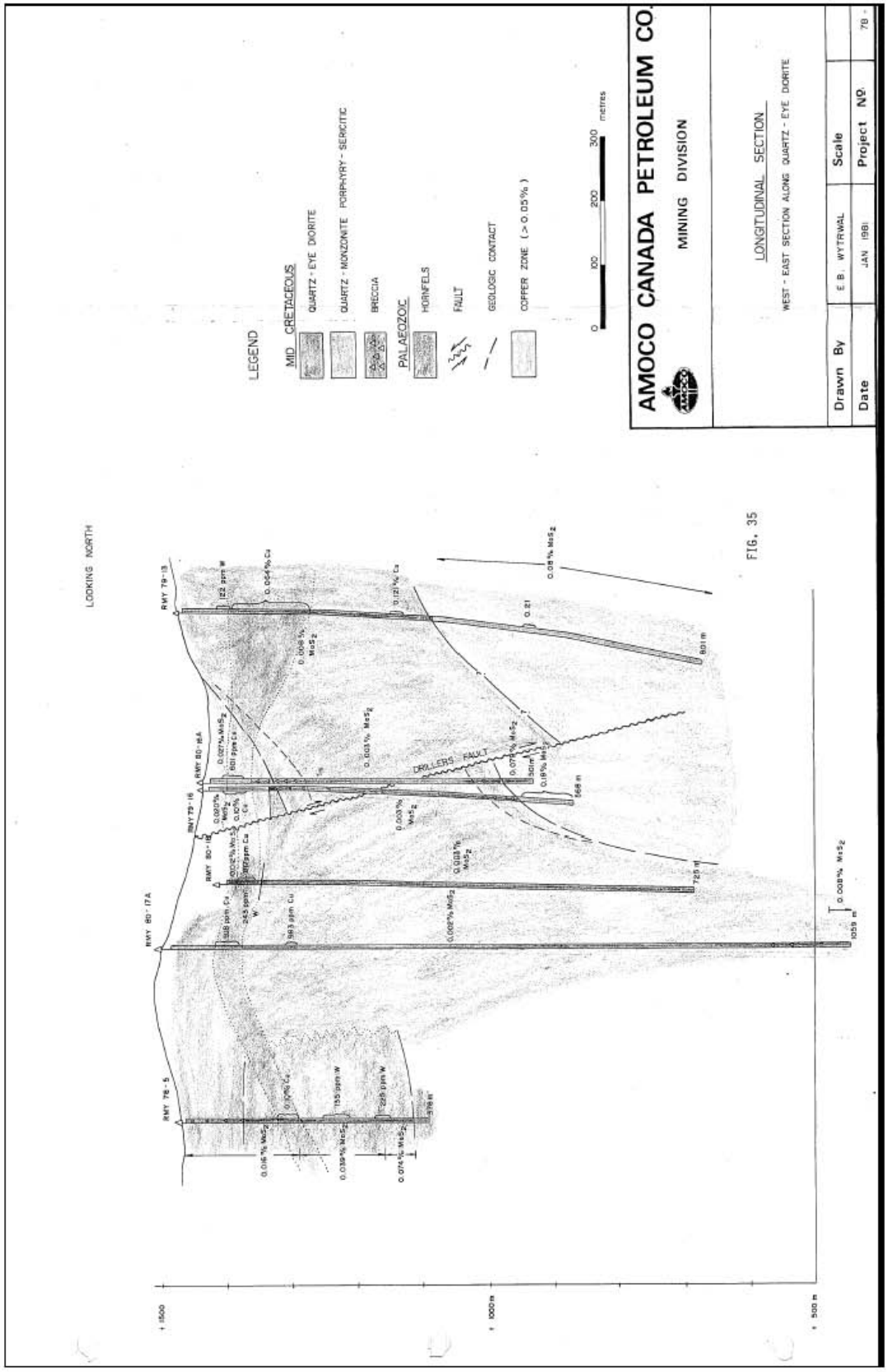
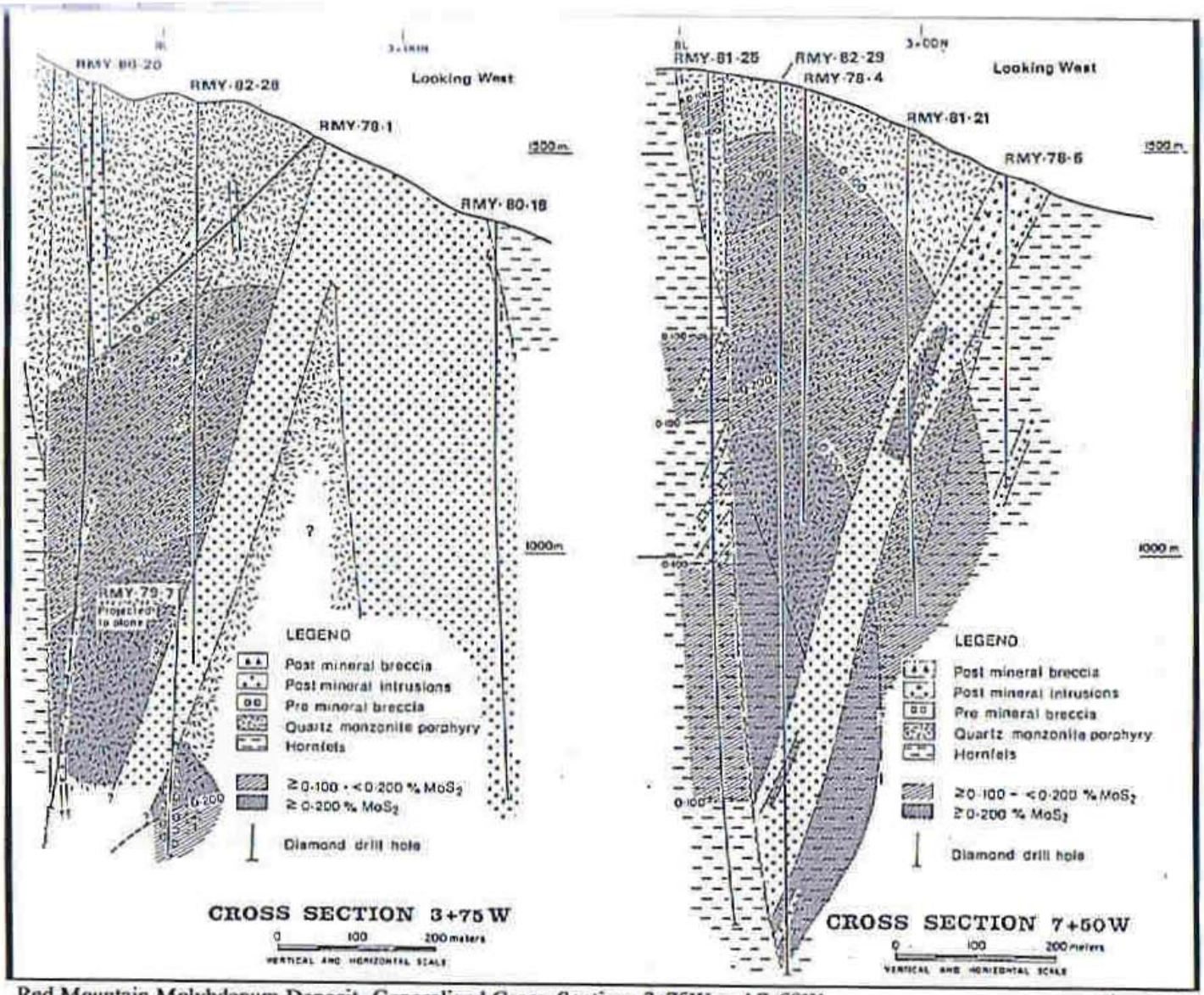


Figure 7 – Generalized Geological Cross-Sections 3+75 W and 7+50W
(from Sabag, 1992)



Red Mountain Molybdenum Deposit, Generalized Cross-Sections 3+75W and 7+50W. Figure 8

The sedimentary rocks surrounding the intrusion are hornfelised and considered to be potentially acid generating (PAG). The porphyry has been intruded near, and along, its northern boundary by a barren quartz-eye diorite dike which ranges from about 30 -200 m wide and is probably the most competent rock type in the area. The surface expression of the host porphyry is oxidized and of low grade. The hornfels in turn are surrounded by fine grained, graphitic shales and light grey shales. Chlorite schist, quartzite and marble have also been observed in the northeast portion of the property (from Sabag, 1992, figures 4 & 5).

Red Mountain is intensively fractured and has several major faults. The most prominent faults have steep dips and trend northeast or southeast. The Chalco Creek Fault is a long northeast – southwest trending fault which truncates the eastern edge of the porphyry system. Two other major faults have been identified (Plug Fault and Driller's Fault, figures 9-11) which displace all phases of the intrusive complex as well as the adjacent hornfels. Both of these are northeasterly faults with significant vertical displacements of 300 to 500 m and down dropped eastern blocks. Mineralization may extend much further to the east but at a greater depth. Driller's Fault has a 26 to 34 meter gouge intersection and associated fracture zones. A major fault gouge zone is also located on the southeast flank of the deposit. A number of other steep gouge zones have also been encountered in drilling.

Some of these fault zones where examined by the author (photos 20-25). In general, the surface oxidization of the monzonite and hornfel units is extensive with rotten crumbly rock to 20 to 30 meters of depth. Bedrock exposures of shales and schists are very deformed and fractured. Surface drilling in 2006 near north of Chalco Creek indicated shales with very low rock quality designation (EBA 2007). The most competent rock unit appears to be the quartz-eye diorite dike on the northeast side of the monzonite deposit. This unit has a reasonably shallow oxidized zone (10 m depth) with consistent and very high rock quality (RQD, example holes # 80-17 and 80-18).

Figure 8 – Layout of Amoco Drill Holes (Plan View)

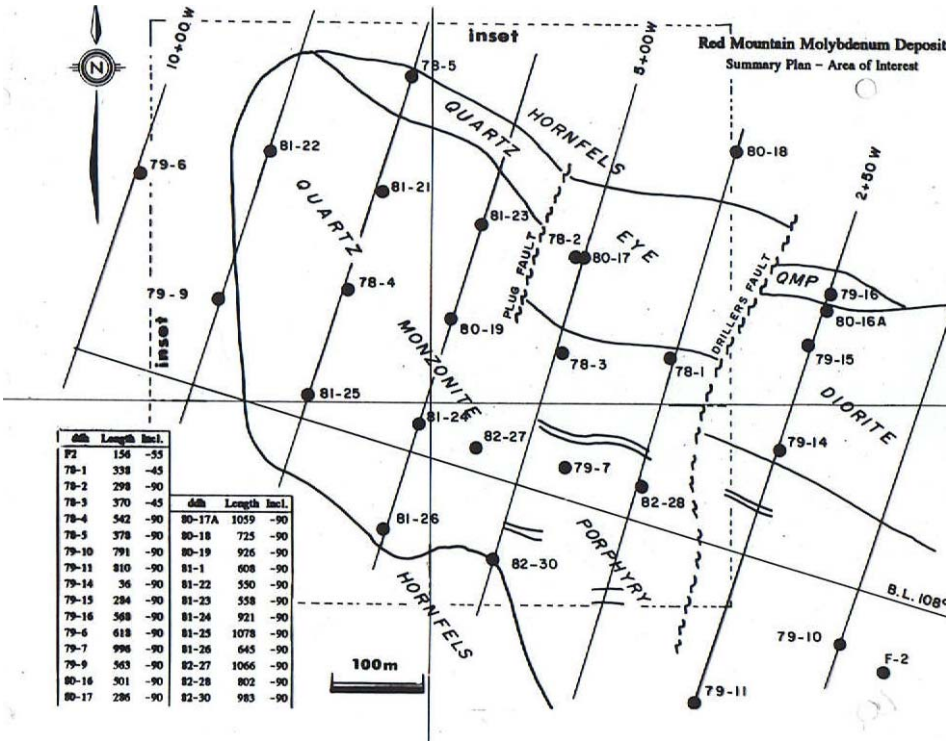


Figure 9 – 1450 Level Geology Plan (1400 m elevation geodetic)

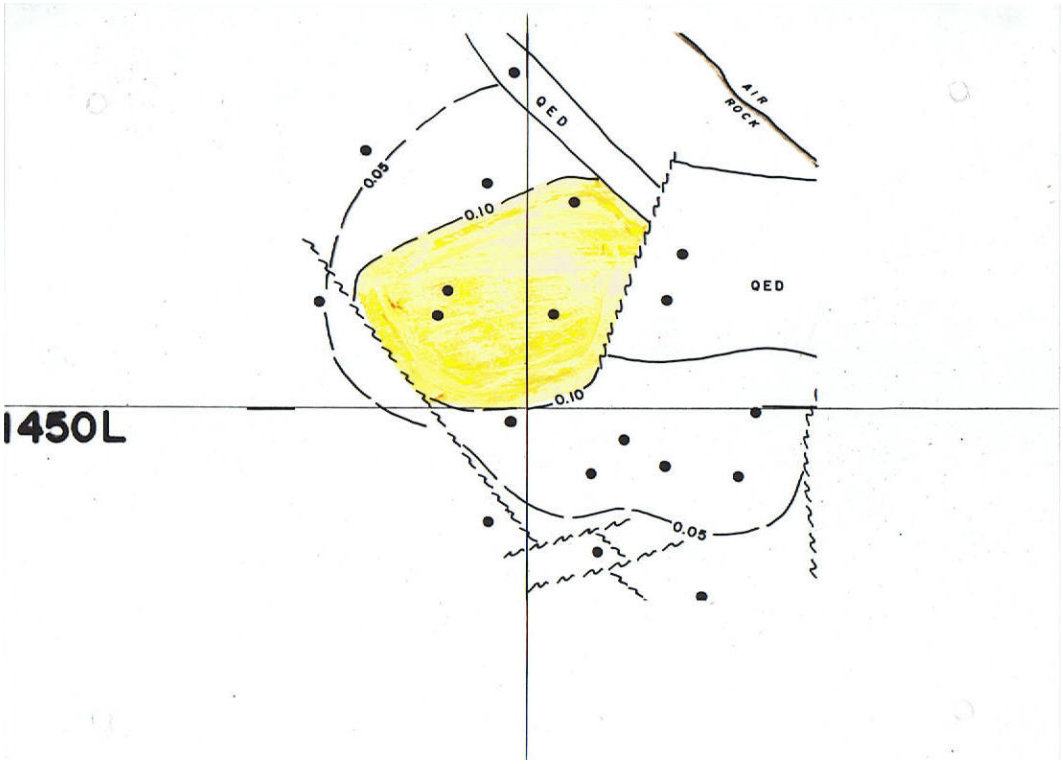


Figure 10 –1250 Level Geology Plan (1200 m elevation geodetic)

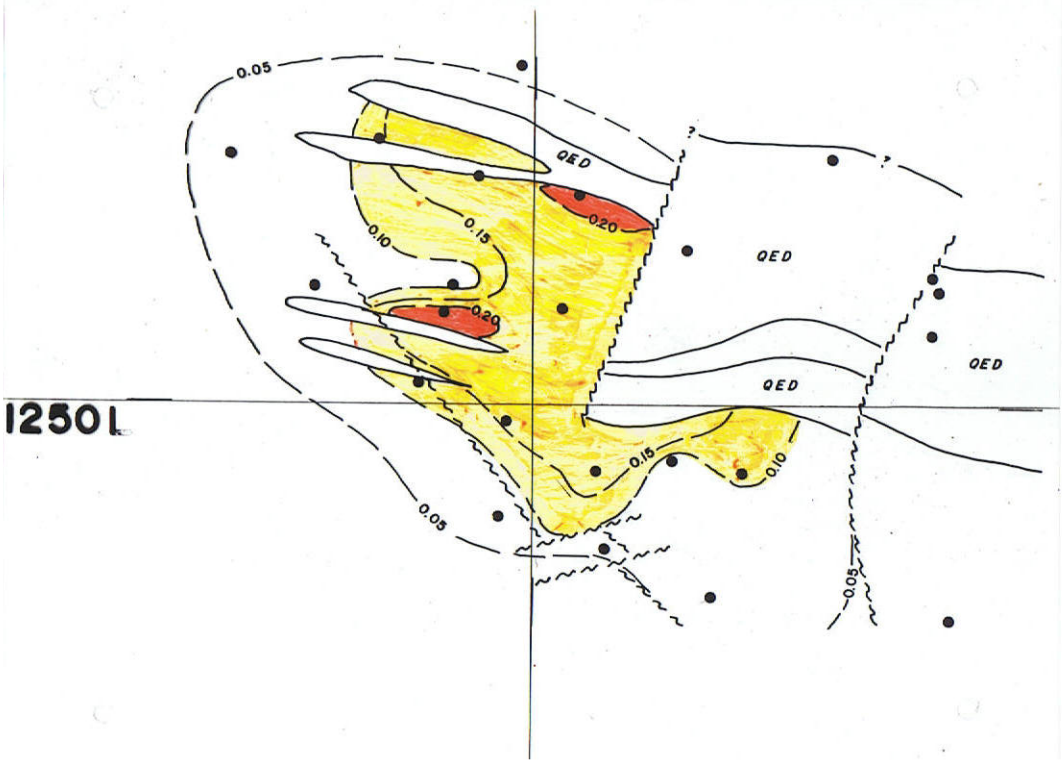
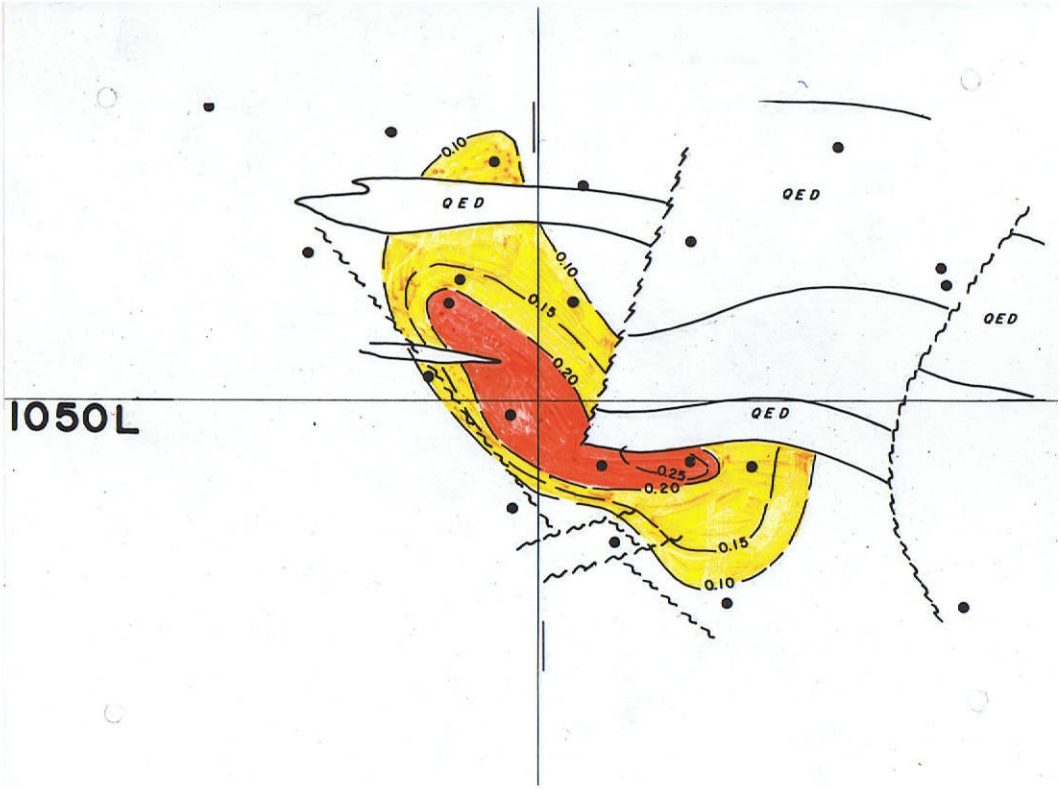


Figure 11 – 1050 Level Geology Plan (1000 m elevation geodetic)



9.0 Permits and Environmental Assessments

At least two permits will be required to permit advanced underground exploration and test sampling of the deposit: a Quartz Mining License and a Water License. Under recent YESAB (Environment Assessment) provisions the project would need to be screened prior to issuance of either license. The simplest YESAB screening would be completed by a District Office and has relatively low thresholds including the requirement of excavating less than 250,000 tonnes of rock.

Projects which excavated more than 250,000 tonnes would go the Executive Level Screening which is considerably more detailed and lengthy (one to two years). Therefore, to ensure timely permitting of the decline, it is imperative that development remain under the 250,000 tonne threshold. If a project is deemed by YESAB to have any "major environmental or socio-economic impacts." it may require Executive Level Screening. This is a "grey area" and one that is subjective by YESAB in their project determination. YESAB rules and procedures are fairly new and may evolve with time and application.

A project deemed to be "advanced exploration" does not necessarily need a second egress (exit from underground such as an escape raise, Naresh Prashad, mines inspector) but would require a second exit once the project was past the advanced exploration stage. A second exit would also greatly simplify ventilation in the development headings.

10.0 Proposed Methodology

1) Repair and/or prepare drill camp accommodation area for workers;

2) Examine core from drill holes collared near the drill camp to assess rock type, faulting, rock quality and obtain samples for acid base analyses;

3) Examine surficial geology and ground conditions near each of the proposed portal locations regarding the stability of the portal, lay down areas and storage areas for PAG waste rock;

4) Drill and log 3 @ 50 m holes at the proposed Boswell River and Chalco Creek portal areas (the presence or absence of poor ground and/or ground water could decrease or increase the number of holes required) – if these portals are not chosen due to adverse conditions, the holes could be used for long term monitoring of ground water quality/levels;

5) Depending on the results of the above, drill and log 3-4 @ 20 m holes near the proposed PAG storage areas for the proposed Boswell River and Chalco Creek portal areas;

6) Drill angle holes to assure location of intersections of quartz eye diorite, quartz monzonite, and hornfel units near Drill Camp and to acquire samples for ARD/ML and rock quality testing - this would then be supplemented by continuous underground drilling during decline and ramp development;

7) Drill and/or test pit unconsolidated material in the cirque area, 2-600 on baseline in area of claim 49FR to test for foundation conditions for a tailings pond;

8) Install piezometers and/or testing devices as required in existing open holes (79-06, 79-16, 80-17 and 80-18) and identify potential changes in this groundwater table with mining operations;

9) Complete packer testing, pump tests and groundwater field chemistry; and

10) Construct test pits proposed to assess foundation conditions for mill site.

11.0 Observations

11.1 Camp

The work outlined in the proposed methodology from steps 1 through 3 was completed. A temporary camp consisting of a plywood cookhouse, plywood mine dry, tool crib, and several tent frames was constructed where the Amoco trail crossed Chalco Creek (photo 26). The camp was close to the proposed Chalco Creek portal but some distance from either the Drill Camp or Boswell River portal options. In winter conditions with blowing snow and potential avalanche conditions it was difficult for the drilling crews to travel between the Chalco Creek camp and the Drill Camp area.

11.2 Amoco Drill Core Examination

Amoco drill hole cores were located in covered storage racks near the Amoco drill camp and were in very good shape. One of the shed roofs had collapsed and this core was transferred to another shed. Drill cores from several holes were examined by the author to determine the depth of oxidation/ degradation of various rock types from the surface and to determine the extent and severity of the various fault zones that may need to be crossed or encountered during mining or in development headings.

The center of the quartz monzonite deposit (drill holes 78-3, 78-4, 79-7, 80-19, 81-21 to 81-23, 82-27 and 82-28) indicate a reasonably competent monzonite deposit except near the oxidized surface and major faults. The hornfels immediately north of the monzonite and next to the quartz-eye diorite appear competent except near the oxidized surface (drill hole 80-18).The quartz eye diorite dike on the north boundary is very competent structure except near the oxidized surface and the two major faults (Plug and Drillers fault). The quartz-eye diorite appears to be the most competent rock for underground development.

The contact between the surrounding hornfels and the quartz monzonite on the south and west deposit limits is extremely fractured and incompetent (drill holes 79-10, 79-11, 80-20, 81-26, 82-30). Several drill holes were stuck and/or lost casing in the contact area. These holes are also near the Chalco Creek Fault on the south-western edged of the deposit. The Chalco Creek Fault is very steeply inclined and all of these holes were near vertical. Therefore the drill/ fault intersections would be exaggerated in length and probably appear poorer in quality. However, all of these holes (82-30 in particular) had extremely poor rock quality. Any underground development in this area would probably be very costly and problematic due to poor ground control. Any access ramp on the Chalco Creek (south) side of the deposit would have to cross this fault zone with the associated ground control problems. Any spiral ramp located in the Hornfels south of the deposit would have to cross this unit several times and therefore would not be a prudent option. The Chalco Creek Fault forms the south-western boundary of the deposit and should be considered in the design and layout of any stopes in this area.

In general, near the deposit the oxidization/ degradation were worst in the hornfels and least in the quartz-eye diorite dike unit. Very poor rock conditions would be encountered for the first 30 m of depth in the hornfels compared to about 10 m of poor rock in the quartz-eye diorites. The diamond drill cores with quartz-eye diorite had very high rock qualities except in major fault zones such as the Drillers and Plug fault zones. One hole in particular (80-17A all in quartz-eye diorite) was very competent with rock qualities commonly exceeding 95% RQD. Another hole (80-18) had similar high quality quartz-eye diorite. The author had proposed another drill hole in this quartz-eye diorite unit west of 80-17A and east of 80-18 to test the competence of fault bounded prism of quartz-eye diorite which is inferred to exist from surface to below the deepest drilling. This unit appears to be the most favourable to host a spiral ramp. Unfortunately this was not completed due to drilling problems in 2006.

None of the Amoco drill holes passed through the Plug Fault so the width and rock conditions of this fault are unknown. An inclined drill hole was proposed to interest this fault to obtain this information. AMOCO drill holes 79-15, 79-16 and 80-16A passed through the Driller's Fault and these cores were examined by the author. The Driller's Fault is steeply dipping and the drill holes intersecting it were near vertical. Therefore the intersections of the Driller's Fault zone were exaggerated in length and probably were chewed up more by the drill (photos 20-25). It would be prudent to avoid both the Driller's and Plug faults in any permanent decline/ramp development. However it would be necessary to cross these faults at various levels to access the deposit but these accesses should be kept as few and as small as possible due to the expected poor ground conditions.

There is surface mapping but only one drill hole south of the quartz monzonite in the hornfels (Chalco Creek side, 2006 drill hole 06-31). There is surface mapping but no drill holes at depth in the metasediments (slates, schists) surrounding the hornfels to the north. Therefore little is known about the rock types to be crossed in the proposed Boswell and Chalco Creek decline options.

Sections of the Amoco drill cores were transported to Whitehorse for future ARD evaluation.

11.3 Surficial Geology and Ground Conditions

The author spent several days during the period July 14th to October 30th 2006 examining potential locations for decline portals, mill sites, tailings pond locations, airstrips, road accesses and other infrastructure that would be required for the future development of the project. Several pits were dug by hand, the soils examined on a preliminary basis to determine their suitability as portal locations, foundations for mill sites, tailing dams and airstrips and for building earth structures such as dams and dikes (figure 12).

The portal area of the proposed Boswell River decline was not examined in great detail by the author but appears to be unsuitable due to the irregular (hummocky) nature of the topography, presence of numerous bedrock outcrops and the proximity to the Boswell River and Red Mountain Creek.

The proposed Chalco Creek portal is located on a steep slope with evidence of localized subsidence and circular failures in the colluvial soils. However, there are several shale bedrock exposures in the area and it appears that a portal landing could be built by infilling the slope below the portal and accessed with steep road from the west.

The proposed portal area for the Amoco Drill Camp portal would be located above the Amoco Drill camp on oxidized quartz-eye diorite. The slope is shallower than at Chalco Creek and could be easily infilled with existing oxidized material to form a portal landing. The Amoco Drill Camp Portal could be connected with a short nearly horizontal road and/or conveyor to the ridge forming the current lay-down area which could be a mill site. This area is above tree line, has very thin soils with thick depths of oxidized bedrock to form good foundations and is subject to high winds.

The best site for a tailings pond is located in a wide shallow valley of an unnamed left-limit tributary south of the Chalco Creek camp. This area directly above Chalco Creek, is already dammed by a natural glacial terminal/lateral moraine and has been cut in a narrow section by the unnamed tributary. The moraine is composed of a silty cobble till that appears solid and relatively impermeable. A glacial moraine east of the natural dam would probably provide suitable soils for dam building as well as an excellent mill site. There appears to be sufficient space and adequate foundation soils up the unnamed tributary valley to construct more and larger tailings ponds as required. The valley would have to be ditched on both sides to divert fresh water away from the tailings ponds (figure 14 and photos 15-18).

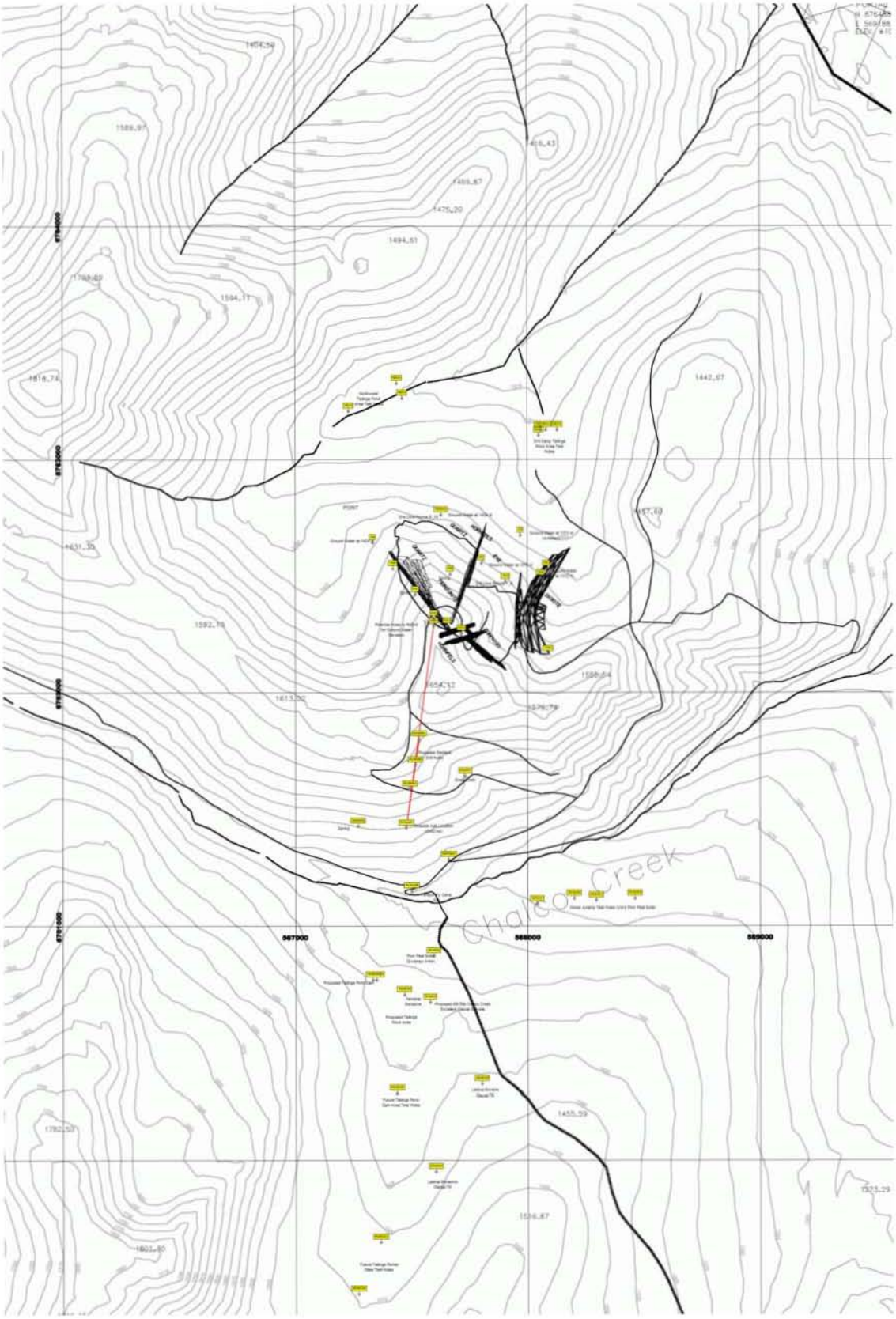
Another good tailings pond site appears to be at the divide between Chalco and Slate Creeks (west of the Chalco Creek camp) where the valley is trench shaped and could be dammed off on both sides to form a pond with very little surface runoff entering it.

Other good sites for tailings include the cirques below the Amoco Drill Camp area, Silco Creek and the mid sections of Silco Creek (figure 14, photos 12 & 13). These areas contained saturated glacial till soils and would also require cut-off trenches to direct runoff away from the tailings ponds. The present lay down area west of the Amoco Drill camp would provide a good but windy site for a mill facility. Water would probably have to be pumped from the Boswell River to this site (photos 9 & 10).

The current winter airstrip near Chalco Creek was examined and found to contain saturated black organic peat-rich soils over large boulders and was deemed to be unsuitable for anything but a winter airstrip (photo 19)

.

Figure 12 – Map of Soil Test Pits



11.4 Hydrology

Red (Slate) Mountain is drained by several creeks which flow into the Boswell River: Silco on the northern side which flows north; Slate Creek which flows north along the western side; Chalco Creek which flows east along the southern side to Red Mountain Creek which continues flowing north along the eastern side of Red (Slate) Mountain (figures 2 & 3, photo 2). Some of the bedrock is potentially acidic (adjacent hornfels) and may contribute to natural acid drainage in the area. There are no fish in this section of the Boswell River due to high falls downstream (photo 1).

The author surveyed several existing drill holes with a hand-held GPS and altimeter. A water depth gauge was dropped down any open holes to determine the depth of ground water and then dropped deeper to ensure the holes were not plugged. Five open holes from the Amoco drilling program were located (78-05, 79-06, 79-16, 80-17 and 80-18). The depth of water ranged from one slightly artesian hole (80-18, photo 8) to 75 m (80-17). The depth of the ground water was estimated to be 1373 m (geodetic elevation) on the eastern side of Red Mountain (near the drill camp) and 1424 m (geodetic elevation) on the western side (hole 79-6).

Table 2 - Drill Hole Measurements

			Geodetic	Depth to	Depth to	Elevation
	Collar	Collar	Elevation	Water	Block	Ground
Drill Hole	Easting	Northing	Collar m	m	m	Water m
78-01	-	-	1,463			
78-05						1404
79-06	567,335	6,762,646	1,447	23	>75	1424
79-09	567,393	6,762,561	1,495	2	9	Blocked
79-14	568,035	6,762,370	1,433	22	35	Blocked
79-15	568,076	6,762,487	1,396	9	23	Blocked
79-16A	568,079	6,762,527	1,384	12	>50	1372
80-17	567,806	6,762,554	1,451	75	0	1376
80-18	567,968	6,762,672	1,370	-1	Artesian	1371
80-19	567,665	6,762,507	1,519	0	3	Blocked
82-20	567,840	6,762,224	-			
81-21	567,638	6,762,622	1,478	7	8	Blocked
81-22	567,469	6,762,668	1,468	9	10	Blocked
81-23	567,718	6,762,597	1,462	10	19	Blocked
81-24	567,600	6,762,406	1,589	0	2	Blocked
81-25	567,514	6,762,419	1,555	0	4	Blocked
81-26	567,597	6,762,317	1,620	0	4	Blocked
82-27	567,778	6,762,334	1,586	0	2	Blocked

Notes: The geodetic elevations are significantly different than those used in the Amoco plans (Amoco plans and sections indicate elevations 51.6 m higher than geodetic). The blocked holes are generally blocked with ice.

11.5 2006 Drilling Program

Unfortunately due to problems encountered with drilling only one hole (06-31) near the proposed portal location above Chalco Creek was completed (collared at 1520 m elevation geodetic). About 6 meters of oxidized rock/colluvium was encountered at the top of the hole. From 6 m to the bottom of the hole at 46 m the bedrock consisted of a slightly weathered, thinly laminated shale with generally poor rock quality (<25% RQD) and there were several broken zones and some intervals with wash-out and no core return. Groundwater was encountered at 18 m below grade (1502 m elevation geodetic). The Chalco Creek portal option was abandoned based on the very poor rock quality and high ground water table encountered in the hole.

Another previously drilled Amoco hole (81-24) in quartz monzonite near the top of Red Mountain (1590 m elevation geodetic) was redrilled to test the uppermost limit of the ground water table. Ice was encountered from approximately 3 m to the bottom of the hole (125 m below grade, elevation 1465 geodetic) which indicated permafrost over this interval. The thickness of the permafrost in hole 81-24 and the fact that holes at similar elevations also appear to have ice blockage at 2 m to 3 m below grade (table 2) indicates that this is not localized and that probably the top of Red Mountain has permafrost to at least the 1465 m elevation (depending on aspect). Water from precipitation must have filled the drill holes and froze up to the active layer (2 to 3 m) therefore the top of the ice is not likely attributable to a piezometric surface. A frozen rock zone near the upper reaches of the mountain would inhibit groundwater recharge and groundwater flow; having positive implications on dewatering requirements for advanced exploration and mine development. Drilling operations were suspended and the hole was not reamed to below the extent of permafrost; therefore the total depth to the groundwater elevation at this location has not yet been determined.

Groundwater from another older Amoco hole (DDH 80-18) was used as a water source for drilling operations. DDH 80-18 is an artesian flowing hole that was capable of supplying water at rates of between 0.3 and 0.45 L/s. EBA installed a pressure transducer and data logger to monitor pumping water levels and recovery in this well during use. The data logger is still installed within DDH 80-18, and once recovered; the drawdown and recovery data will enable an interpretation of rock transmissivity in the vicinity of this test well. EBA also collected samples from DDH 80-18 for laboratory analysis of physical parameters, anions and nutrients, total metals and cyanide. EBA installed a monitor well and completed packer tests in hole 06-31. Laboratory chemistry results are provided in EBA, 2007 in Appendix A.

12.0 Potential Declines

12.1Options

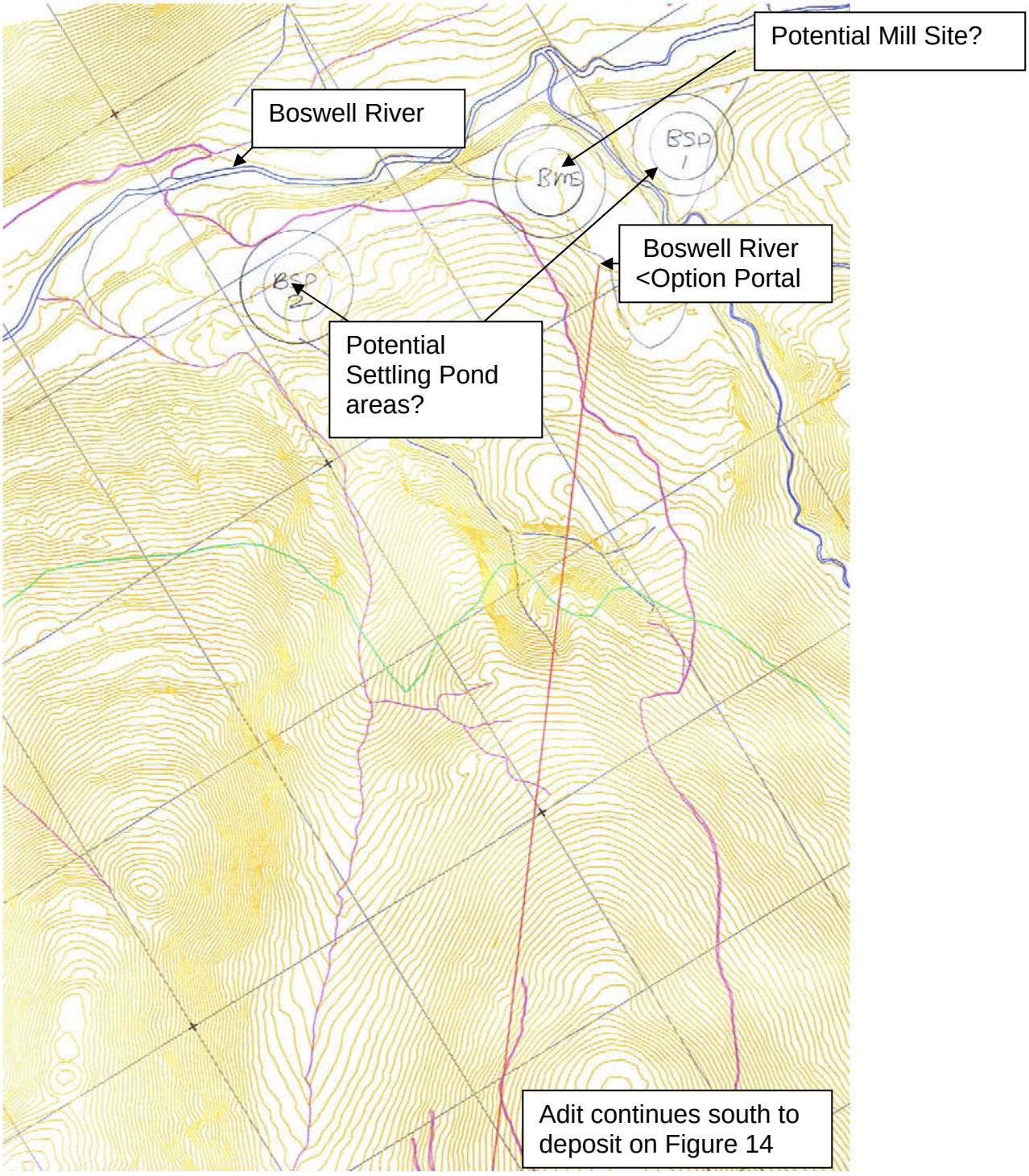
Several decline options were proposed including:

1) Boswell River Option – A 3200 m long decline @ 15% starting near the Boswell River on the north side of Red Mountain and continuing southwest and arriving at the north edge of the deposit at a elevation of 491 m;

2) Chalco Creek Option - A 920 m long decline originating on the south side of Red Mountain above Chalco Creek at the 1,450 m elevation and continuing northeast to the south side of the deposit at an elevation of 1312 m. A crosscut across the deposit and spiral ramp would be required to access lower levels ; and

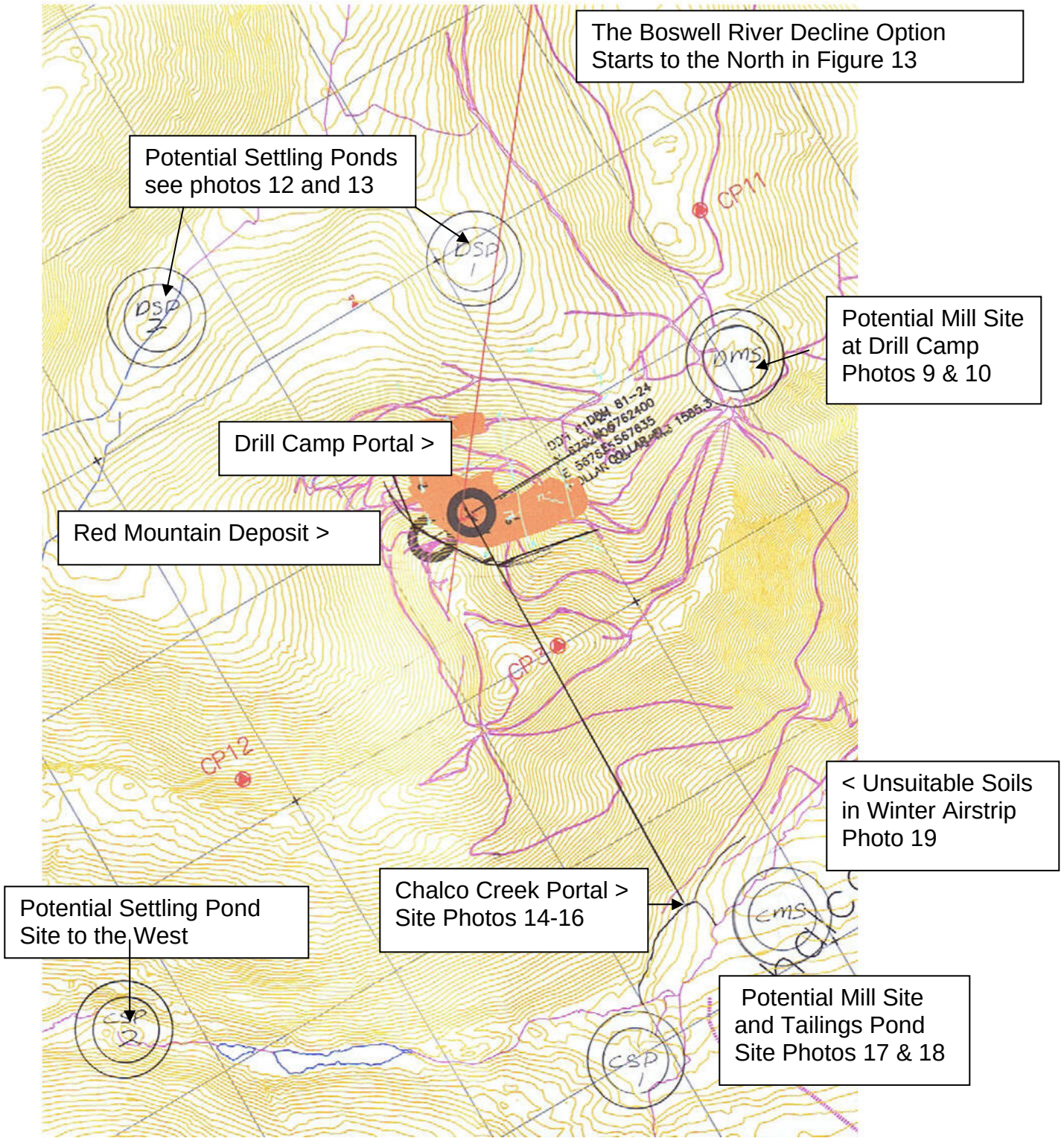
3) Amoco Drill Camp Option - A spiral ramp originating on the north side of Red Mountain just above the Amoco Drill Camp at the 1450 elevation in and continuing downwards for 5,480 m to the 628 elevation at the north edge of the deposit in the quartz-eye diorite dike.

Figure 13 - Plan of Red Mountain Portal Options North



Notes: Boswell River portal shown at northeast (top of map) just south of the Boswell River. Potential mill site BMS is located near the portal, potential tailings pond sites are shown on either side. The south half of the decline is shown on the following Figure 14)

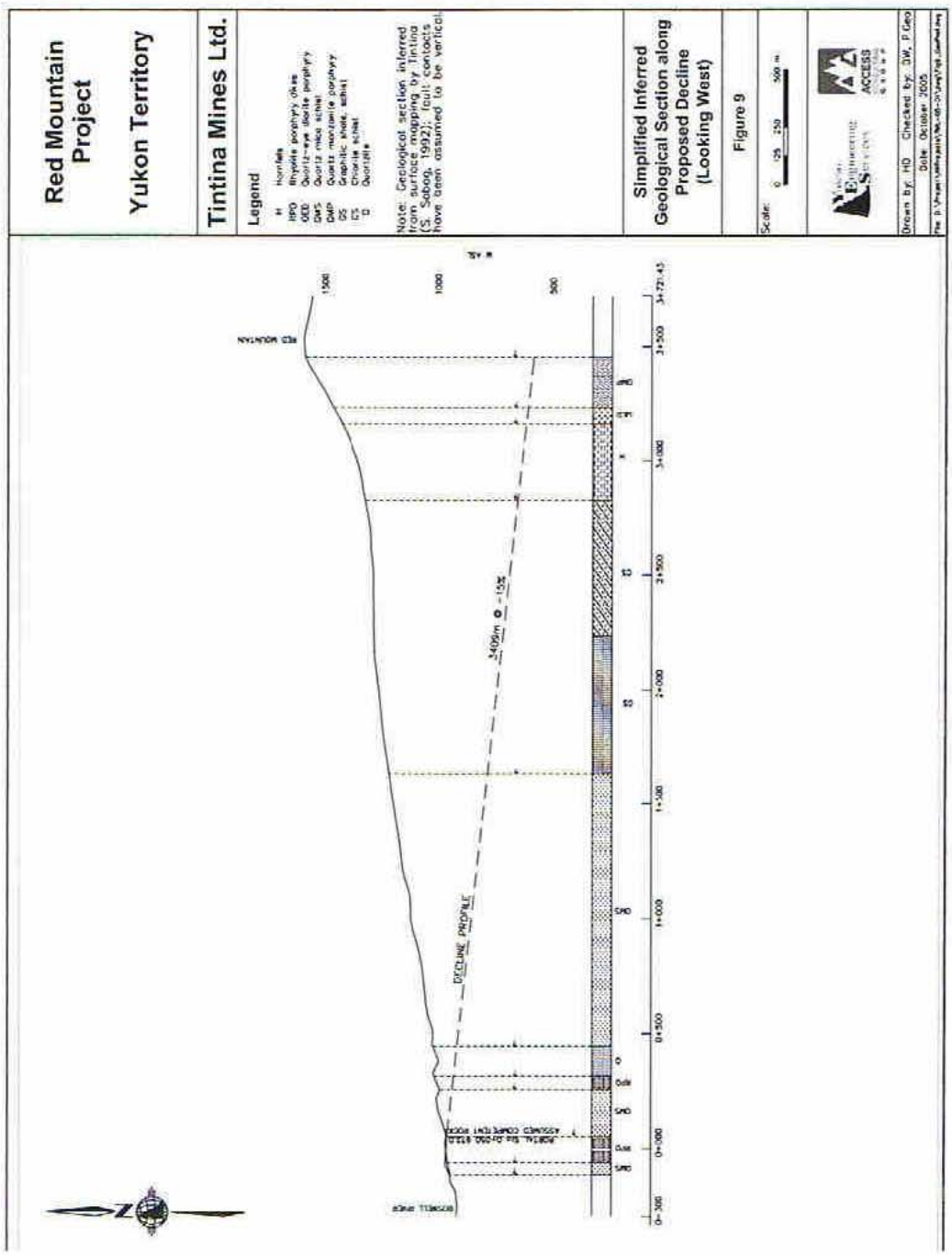
Figure 14 - Plan of Red Mountain Portal Options South
(Drill Camp & Chaco Creek with Potential Mill Sites and Tailings Ponds)



Notes: Chalco Creek Portal is on the southeast corner with potential mill site (CSP) and two potential tailings pond sites (CSP 1 & 2) shown.

The Drill Camp Portal would enter on the north side of the deposit (in red), potential mill/tailings sites are shown as DMS and DSP1 and DSP2.
Scale and Orientation: grid is spaced at 500 m, north is at upper left.

Figure 15 - Long Section of Proposed Boswell River Decline



12.2 Boswell River Site

This would be lowest decline with a portal near the Boswell River and decline from 975 m elevation for about 3,160 m at 15% before reaching the edge of the ore body at the 501 m elevation. This provides the closest line drive access to the deepest (and richest) part of the deposit. The decline would have to be driven relatively large (~4 to 5 m square) to allow for truck haulage after the "advanced exploration" stage or alternatively wider (~6 m) and lower to allow for the installation of a conveyor for ore transport. Assuming a density of 2.8 and an allowance of 10% for over break and remuck/drill stations, and 340 m of cross-cut development the excavation would be about 225,000 tonnes. This is just under the "advanced exploration" YESAB threshold (250,000 tonnes). A 3 by 4 m vent raise/egress equipped with an Alimak or similar elevator would be 960 m long and have an excavation of about 32,000 tonnes. This raise is very long and would be very difficult to drive either with raise boring or Alimak technology. Access to other levels above and below would require a spiral ramp. If the decline was abandoned for any reason prior to completion (i.e. due to ground control, ground water inflows etc.) it would not add any value to the property.

The geology and rock conditions are unknown for large distances except as mapped on surface and near the limits of the deposit. There are potentially soft fractured chlorite and sandstone argillite schists. The routing is parallel to Silco Creek under swampy areas and other surface water storage. The route is also potentially near/under large regional fault structures. Geophisics (appendix B) suggest these faults are steeply dipping. This would require extensive drilling of very deep (up to ~800 m) holes to ascertain geology or alternatively a drill-as-you-go program to help predict future ground and water conditions. Note that it is often difficult to determine location of the bottom of a deep hole accurately and to determine the orientation of faults discovered by drilling.

This portal would be closest to the most reliable water source (the Boswell River) in the area. The portal has a limited lay down area with some relatively flat areas (truncated with gulleys) on bedrock nearby. These appear to be relatively poor sites for mill and tailings pond development. Its nearness to the Boswell River may increase environmental sensitivity and difficulties in acquiring permitting.

A length of new road would have to be designed and constructed from the Chalco Creek crossing on the Amoco trail to the Boswell River area. The existing access road along the north side of Slate (Red) Mountain is narrow, located on extremely steep side slopes and subject to slides and avalanches (photo 4). The same new road construction would be required for the proposed Amoco Drill Camp Portal.

A summary of the advantages and disadvantages of this portal is as follows:

***Advantages of Boswell River Decline*:**

- closest line drive to deep section of the deposit at medium high grades of MoS2
- closest to most reliable water source at Boswell River

***Disadvantages of Boswell River Decline*:**

- Portal is below ground water table and may produce acid drainage requiring perpetual treatment – in this case it would be extremely difficult to permit under existing Yukon policy especially as “advanced exploration” and in any event would be very expensive to bond.;

- access tunnel would be so deep under Red Mountain that it would be very difficult and expensive to construct secondary access for escape and ventilation (959 m long);

- this portal would require the construction of a spiral ramp during mine development to access higher and lower portions of the deposit - in any event there would likely need to be another ramp driven up to surface for ventilation/access (it is more difficult to drive a ramp up than downward);

- geology and rock conditions are unknown except as mapped on surface and near the deposit – potentially soft fractured chlorite and sandstone argillite schists – potentially near/under large regional fault structures - would require extensive drilling of very deep (up to ~800 m) holes to ascertain geology or drill-as-you-go to predict future ground/water conditions– difficult to determine location of the bottom of a deep hole accurately;

- May exceed the YESAA tonnage threshold in advanced exploration due to contingency factors and therefore push the approval to an “Executive Level” review which would require from 1 to 2 years for environmental assessment, and issuance of a water license and quartz mining permit. The project may be considered to have “significant” environmental effects and require a more lengthy Executive Level environmental screening.

- Limited site lay down, potential mill and tailings pond areas in hummocky (gullied) ground comprised of solid rock; and

- Furthest from Amoco road access.

12.3 Chalco Creek Portal

Proposed Chalco Creek Portal

This proposed portal location is closest to the existing access (Amoco Trail) and would not require further access road construction and design as in the other two portal options. However, a steep access road (with a switchback) along the north face of Slate (Red) Mountain would be required to access the portal at the 1450 to 1475 m elevation (geodetic, photos 14-16). The Chalco Creek in this location is only 1350 m in elevation (geodetic). The presence of large spruce trees at the base of the slope in this location

suggest an absence of avalanche hazard in this area, however, this should be confirmed in the winter with an avalanche specialist.

Shallow test pits in the area indicated favorable conditions for the establishment of tailings ponds in the cirques above an unnamed left (south) tributary of Chalco Creek near the Amoco Trail crossing (photos 17-18). The first pond could be located next to a terminal glacial moraine which forms a large natural and apparently competent dam for the structure. The moraine could be raised with nearby gravelly/silty glacial till and a mill site located on the western area of the terminal moraine. Future expansions of the tailings pond could be accommodated at a number of locations further upstream in the main cirque of this stream. Cut-off trenches would be required on both sides of the cirque to divert fresh water away from the tailings dams.

These mill and pond locations are lower (1386 m elevation, geodetic) and would be much less exposed to (winter) weather than on the Drill Camp Lay-down area on top of Slate (Red) Mountain. They are also next to the Amoco access trail. Water flow in the combined unnamed tributary and Chalco Creek appeared to exceed 0.1 cms in the summer, however, further flow measurements in late winter (January through March) would be required to confirm an adequate supply of water for milling. Some more water suitable for use in the mill would also be available from dewatering the underground mining operations.

Slate and shale bedrock is exposed on the north slope of Slate (Red) Mountain above the Amoco trail crossing (photos 15-16). It appears heavily fractured and dipping from 35 to 50 degrees into the hill (north). The slope of the hill in this area is roughly 30%.The geology and rock conditions are unknown for some distance except as mapped on surface and near the limits of the deposit. There are potentially soft fractured chlorite and sandstone argillite schists. It would require extensive drilling of deep (up to ~300 m) holes to ascertain geology or drill-as-you-go to predict future ground/water conditions

The decline would have to be driven relatively large (~4 to 5 m square) to allow for truck haulage after the “advanced exploration” stage or alternatively wider (~6 m) and lower to allow for the installation of a conveyor for ore transport for future mine operations. Depending on rock conditions the main decline could be routed to proceed through to the north side of the upper ore body and spiral through the quartz-eye diorite located on the north (Amoco Drill Camp) side of the ore body and provide similar access. A second access would be required for safety and ventilation once the “advanced exploration” stage was completed. A raise driven from near the deposit at the 1178 m elevation would be approximately 300 m long. Access to other levels above and below would require a spiral ramp.

Test pits at the winter airstrip near the Chalco Creek portal indicated over 1.5 m depths of saturated peat soils unsuitable for the construction of any permanent airstrip / road/ or other civil structure (photo 19). Further ground investigation should be done to locate a suitable area for an airstrip closed to the Chalco Creek portal as the Boswell airstrip would be very difficult to access without the construction of new access road.

The advantages and disadvantages of this portal option are as follows:

Advantages of the Chalco Creek Decline:

- suitable potential sites for tailings and mill nearby (approx 200-400m, figure 14, photos 17-18);

- probably wouldn't exceed the YESAB threshold of 250,000 tonnes for advanced exploration; and

- closest proximity to Amoco access road exit from site.

Disadvantages of Chalco Creek Decline:

- a steep access road (with a switchback) along the north face of Slate (Red) Mountain would be required to access the portal at 1450 to 1475 m elevation;

- would have to drive through the extensive Chalco Creek Fault structure and overtop of the deposit to the quartz-eye diorite to engage competent rock for driving a ramp and for accessing lower levels of the deposit – long 300 m raise required to surface for ventilation/egress;

- rock stability at potential portal is very poor (>25% RQD) and other sections are probably poor as surface exposures show highly fractured schists;

- geology and rock conditions are unknown except as mapped on surface and near the deposit - would require extensive drilling of deep (up to ~300 m) holes to ascertain geology or drill-as-you-go to predict future ground/water conditions;

- potential avalanche concerns at portal to be examined;

- may have to pump water the longest distance (6 km) from reliable water at the Boswell River depending on year round flows at Chalco Creek.

12.4 Amoco Drill Camp Portal

This portal would start near the Amoco drill camp (figures 14, 16-19, photos 5-8) at an elevation well above the ground water level (1450 m geodetic) and enter into the quartz eye diorite dike that runs parallel to the long axis of the deposit and is located just north of the deposit (figures 16-19). The decline would provide immediate access to the top of the deposit and continuous access for drilling and sublevel development as it continued downward.

Either during or after the "advanced development" stage of the project raises could be driven easily and conventionally between the various levels of the decline for emergency access, ventilation, ore passes and a shaft for ore/materials haulage. Therefore the decline could be driven at a much smaller size (as small as ~4 by 2.5 m) than the Boswell River or Chalco Creek declines because other haulage options

(hoist/skip and frequent ore passes) exist and large trucks may not be required underground for haulage.

The spiral ramp could be driven to various levels. To reach the 628 m elevation it would require approximately 5,480 m of spiral at 15% decline with about 184,000 tonnes excavated. This would require an additional 32,000 tonnes for 360 m of in deposit development and 10% over break/ auxiliary. A connecting 1.5 by 1.5 m ventilation raise and 3 by 3 m shaft would require an additional 21,000 tonnes of excavation. All of this development would still be under the YESAB threshold of 250,000 tonnes. To reach the 850 m elevation the spiral ramp would only have to be 4,000 m long or about 134,000 tonnes of excavation.

This decline would occur in an area with several deep drill holes and with the best known geology of all the decline options. Only minimal drilling may be required to define a good portal location and confirm the quality of the quartz-eye diorite. The host quartz eye diorite is potentially the hardest and most competent rock outside of the deposit, however, an examination of previous drill core and some limited drilling will be required to confirm this. Drilling from remuck stations should be conducted concurrently with decline development to define the ore zone and to ensure that the decline is located a reasonable distance from any potential ore.

This portal would be 3 km from reliable water source (the Boswell River) in the area. The portal appears to have an adequate lay down area with some relatively flat areas across near the drill camp for mill construction (photo 9-10). There are two cirques (bowls, photos 12-13) just below the drill camp that could be investigated for tailings storage. The drill camp has existed for several decades but the area should still be investigated for its avalanche potential by an expert in the field.

12.5 Amoco Drill Camp Portal Field Examination

An examination of drill core in the area of the Amoco drill camp portal indicates a minimum of 20 to 30 meters (vertical) of heavily fractured and oxidized rock to pass through during portal construction (photos 20-25). Further cores from the earlier pre-1979 “F” series of drill holes have yet to be examined.

Foundation conditions on the old lay down area located on a broad ridge east of the proposed portal appear excellent for the establishment of a mill and ancillary facilities, however, the location would be quite high in elevation (1575 to 1625 m geodetic) and exposed to the (winter) weather (photo 9-10).

Shallow test pits indicate the two cirques below the Amoco drill camp on Silco Creek appear favorable for the construction of settling ponds and dam structures (photos 5 & 6). The soils are very wet but appear to be composed of competent silty gravel (glacial tills) with suitable impermeability and strength. The areas available for settling are suitable but may be of limited area for extensive long-term operations. Further settling pond development may be feasible further down the Silco Creek Valley towards the Boswell River. Cut-off trenches would have to be dug on both sides of the cirque to

divert fresh water away from the tailings ponds. Further surveying would be required to determine their tailings capacity and further geotechnical analysis would be required.

Another open drill hole (78-05) was located during a site inspection by EBA Geotechnical Consultants (August 14th, 2006) and the ground water was measured at 1404 m elevation (geodetic). This hole was located between other measured holes and appears to confirm ground water level measurements in the area (between 1373m on the east side and 1424 m elevation on the west side, geodetic).

This proposed portal would require design and extension of the existing Amoco Trail as the existing access along the south side of Slate (Red) Mountain is unsuitable for permanent access (see notes for proposed Boswell River portal., photo 4).

Advantages of Amoco Drill Camp Decline:

The advantages and disadvantages of this portal option are as follows:

- location of the decline collar above the ground water table would avoid release of potentially acid ground water and thus avoid long term water treatment issues;

- this location is likely to be the easiest for permitting with the lowest long term bonding requirements;

- provides immediate and continuous access to the deposit at all levels for drilling and sublevel development;

- would be driven in what appears to be the hardest and most competent rock (quartz-eye diorite) - this needs to be confirmed with more drill holes;

- would be driven in the best known geology due to nearness of many deep drill holes;

- is a more flexible development plan which facilitates the driving of relatively short raises for access between spirals on the ramp for ventilation and for skip/hoist haulage;

- may be able to drive a longer smaller sized decline because it may not be necessary to use large trucks for haulage;

- can drive the decline to similar depths as the Boswell River option depending on the length of the decline driven;

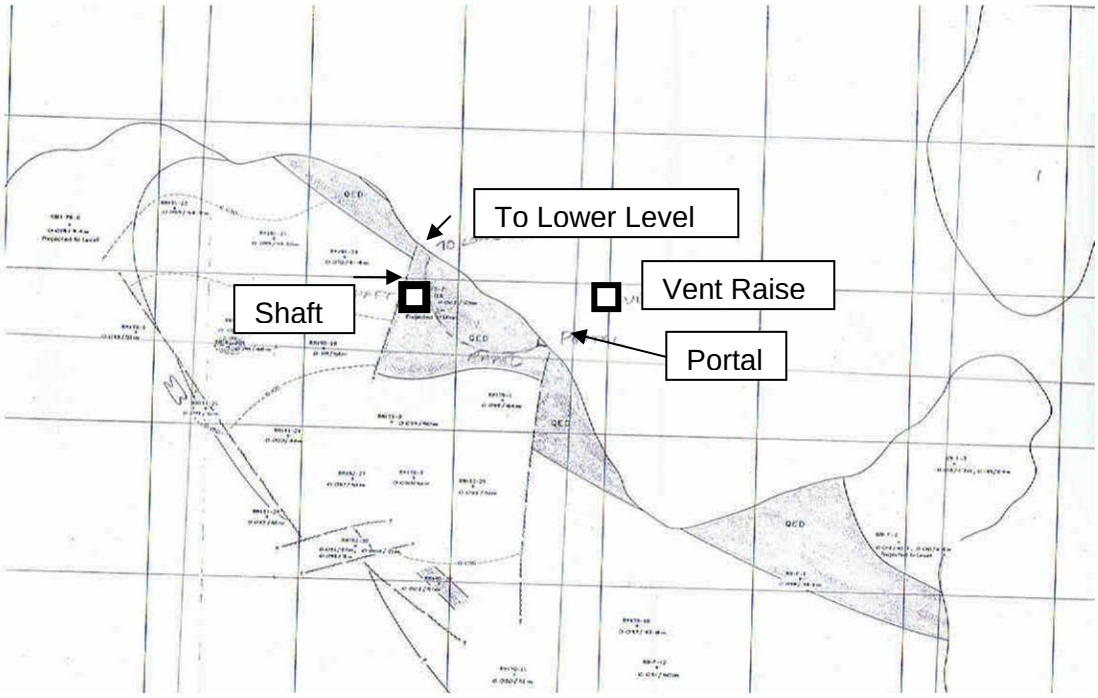
- has adequate lay down and mill construction area – potential good sites for tailings in cirques located directly below; and

- remote from environmental concerns near Boswell River

Disadvantages of Drill Camp Decline:

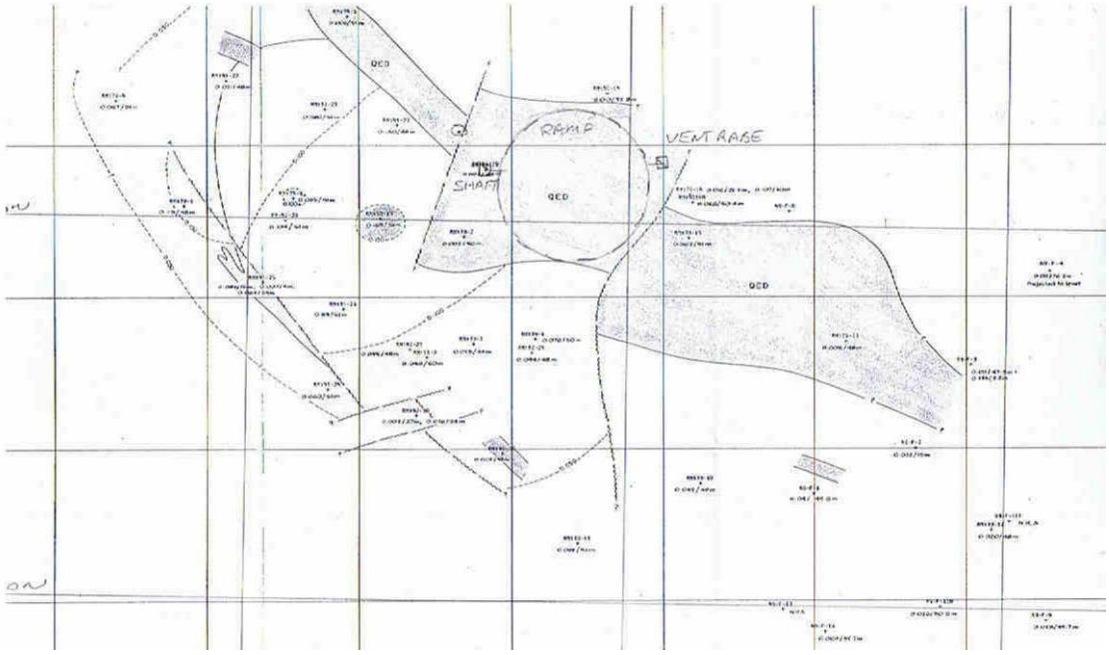
- will be entering the top of the deposit (versus Boswell River option);
- will need good geological control to avoid entering the deposit as it is faulted off to the north at depth;
- need to perform cost analysis of hoist/skip vs. truck haulage up larger ramp;
- fairly high elevation site with high winds;
- some potential avalanche concerns; and
- minor creek diversions required around the cirques which are identified as potential tailings sites

Figure 16- 1500 Level Plan of Drill Portal Spiral Ramp (1450 geodetic)



Note: This shows the Entrance Portal, Shaft and Vent Raise at 1450 ASL

Figure 17 - 1400 m Level Plan of Drill Camp Spiral Ramp (1350 m Geodetic)



Note: Ramp Development is in Competent Quart-Eye Diorite Unit

Figure 18- 1050 Level Plan of Drill Camp Spiral (1000 m Geodetic)

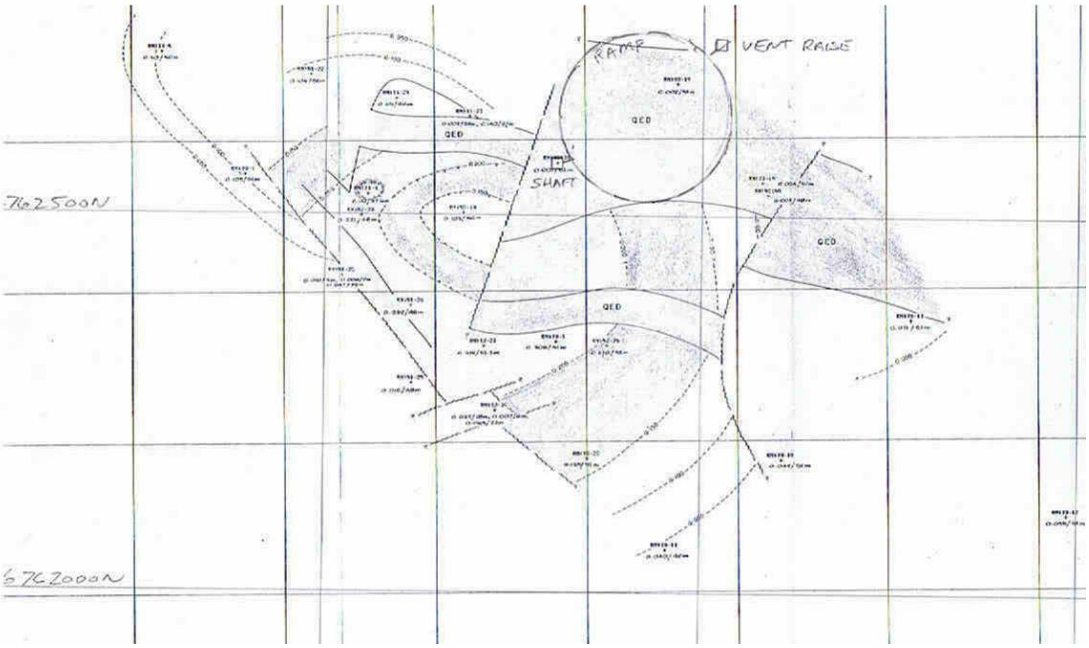
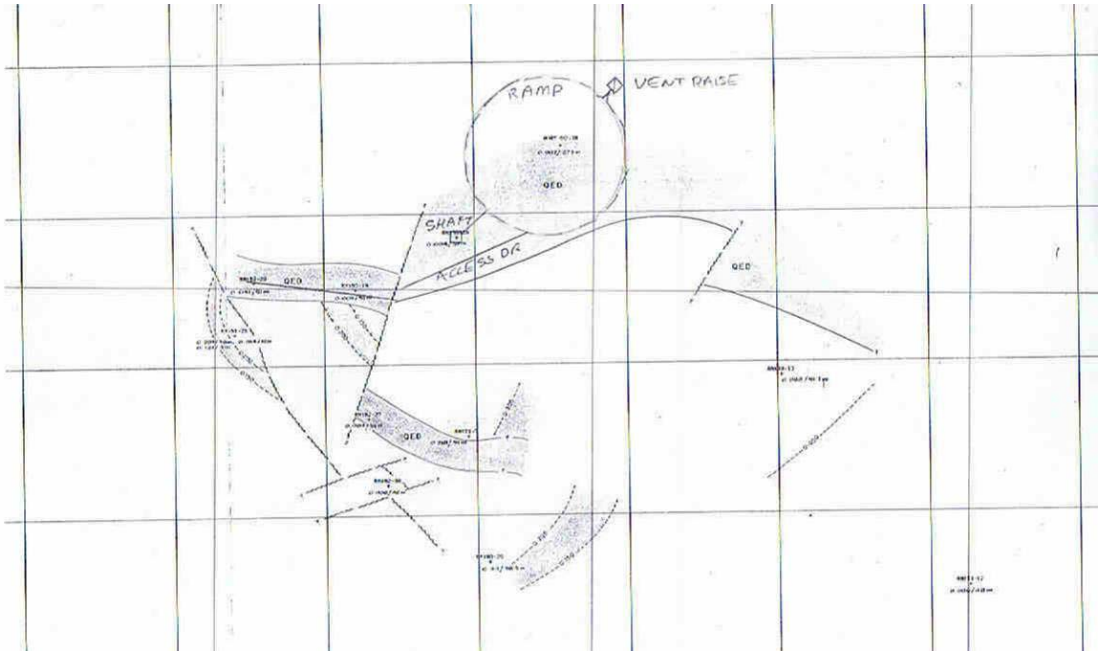


Figure 19 - 700 Level Plan of Drill Camp Spiral (650 m Geodetic)



Note: 650 Level is the Start of Higher Grade Portion of Deposit

Potential Declines, Deposit Access, and Estimated Tonnages
Boswell Compared to Drill Camp

Boswell Portal

Ramp size 5m*4m
Ramp length 3.2 km

Item	*Heading width m*	*Heading height m*	*Heading Area m2*	*Heading length m*	*Heading volume m3*	*Heading tonnes*	*Heading Grade %*	*Start Elev m*	*End Elev m*	
						2.8				
					3,200	8,960				
Boswell Decline NAG	5	4	20	2,460	49,200	137,760	15%	975	606	conventional ramp
Boswell Decline PAG	5	4	20	700	14,000	39,200	15%	606	501	conventional ramp
Boswell Cross cut	5	4	20	340	6,800	19,040	3%	501	491	
Auxiliary Headings 10%				350	7,320	20,496				
Subtotal Boswell Portal				3,850	80,520	**225,456**				
Boswell Vent Raise *	4	3	12	959	11,508	32,222				
Total Boswell with Vent Raise					92,028	**257,678**				

Boswell River Portal Option

* The ventilation raise for Boswell option is larger in diameter as compared to raises designed for Drill Camp options, due to length (950 m)
and requirement for elevator. The Boswell decline would start 475 m lower (at 975m) and would end at the 491 m level.
Most of the Boswell decline would be in unknown slates, schists and in heavily faulted hornfels near the monzonite.
This scenario provides for a single short cross cut of 340m, and tonnages exceed designated office approval level of 250,000 tonnes.

Drill Camp Portal - Option 1

Ramp size 4m*3m
Ramp length 3.2 km

Item	*Heading width m*	*Heading height m*	*Heading Area m2*	*Heading length m*	*Heading volume m3*	*Heading tonnes*	*Heading Grade %*	*Start Elev m*	*End Elev m*		
								1,450			
Drill Camp Z Ramp **	4	3	12	5,480	65,760	184,128	15%	1,450	628	conventional ramp	diorite only
Lower Cross Cut	4	3	12	360	4,320	12,096	3%	628	617	conventional drift	diorite and monz
Auxiliary Headings 10%				584	7,008	19,622					
Subtotal Drill Camp Portal				6,424	77,088	**215,846**					
Connecting Raises	1.5	1.5	2	1,073	2,414	6,760	50 degree	1,451	628	conventional raise	diorite only
Connecting Shaft	3	3	9	823	7,407	20,740	vertical	1,451	628	conventional raise	diorite only
Subtotal Drill Camp Raises				1,896	9,821	**27,500**					
Total Drill Camp with Raises/Shaft				8,320	86,909	**243,346**					

Notes:

For comparison purposes to Boswell Option, the ramp length was kept at 3.2 km to ascertain maximum achievable depth.
The drill camp portal can accommodate a reduced size due to the use of a shaft to hoist ore instead of trucks.
The portal design and associated geology of the quartz eye diorite enable raises to be driven between ramp levels
which will provide required ventilation and a shaft for hoisting muck to surface.
The starting elevation is at the 1,450 meter level and ends at the 617 meter level and provides access to a majority of the deposit within tonnage threshold levels of designated office approval of 250,000 tonnes.
The ramp development accommodates all safety issues and is conducted in the most competent geological unit (the quartz-eye diorite) and therefore is expected to have fewer ground control problems. Knowledge of this area from previous drilling is considered to be good, although testing of the collar area and the Plug Fault that would be transected by the lower cross cut into the depost would be required.

Drill Camp Portal - Option 2

Ramp size	3m*4m
Ramp length	**850 level**
	1100
Cross Cut #1	level
Cross Cut #2	850 level
Shaft Size	**3m*3m**

Item	*Heading width m*	*Heading height m*	*Heading Area m2*	*Heading length m*	*Heading volume m3*	*Heading tonnes*	*Heading Grade %*	*Start Elev m*	*End Elev m*		
								1,450			
Drill Camp Portal Reduced Size to 850 elevation only											
Drill Camp Ramp	4	3	12	4,000	48,000	134,400	15%	1,450	850	conventional ramp	diorite only
Lower Cross Cut 850	4	3	12	400	4,800	13,440	3%	850	838	conventional drift	diorite and monz
Upper X Cut 1100	4	3	12	500	6,000	16,800	3%	1,100	1,085	conventional drift	diorite and monz
Auxiliary Headings/ Over break 10%				490	5,280	14,784					
Subtotal Drill Camp Portal				5,390	64,080	**179,424**					
Connecting Raises	1.5	1.5	2	783	1,762	4,933	50 degree	1,450	850	conventional raise	diorite only
Connecting Shaft	3	3	9	600	5,400	15,120	vertical	1,450	850	conventional raise	diorite only
Subtotal Drill Camp Raises				1,383	7,162	**20,053**					
Total Drill Camp with Raises/Shaft				6,773	71,242	**199,477**					

Notes:

For comparison purposes to Drill Camp Option #1, the ramp was only lowered to the 850 meter level, considered to be a level which would facilitate exploration drilling of entire depost including lower reaches, and bulk sampling of a high grade ore section within 81-24 intersected at the 750-769 m (not geodetic) which includes 9 meters grading 0.418% or better. Two levels for testing are recommended as ore grade intersections in holes such as 80-19, 81-21, 78-4, and 79-7 have ore grade intersections at the 1100 level.

The drill camp portal can accommodate a reduced size due to the use of a shaft to hoist ore instead of trucks. The portal design and associated geology of the quartz eye diorite enable raises to be driven between ramp levels which will provide required ventilation and a shaft for hoisting muck to surface.

The starting elevation is at the 1,450 meter level and ends at the 850 meter level and this results in a lot of margin
for tonnage at 199,477, which is well within tonnage threshold levels of designated office approval of 250,000 tonnes. At these tonnage levels, a double shaft could be constructed for better passage of personnel and a dual hoist system. The ramp development accommodates all safety issues and is conducted in the most competent geological unit (the quartz-eye diorite) and therefore is expected to have fewer ground control problems. Knowledge of this area from previous drilling is considered to be good, although testing of the collar area and the Plug Fault that would be transected by the lower cross cut into the depost would be required.

Drill Camp Portal - Option 3

Ramp size	3m*4m
Ramp length	**850 level**
Cross Cut #1	1100 level
Cross Cut #2	850 level
Shaft Size	**5m*5m**

Item	***Heading width m***	***Heading height m***	***Heading Area m2***	***Heading length m***	***Heading volume m3***	***Heading tonnes***	***Heading Grade %***	***Start Elev m***	***End Elev m***		
								1,450			
Drill Camp Ramp	4	3	12	4,000	48,000	134,400	15%	1,450	850	conventional ramp	diorite only
Lower Cross Cut 850	4	3	12	400	4,800	13,440	3%	850	838	conventional drift	diorite and monz
Upper X Cut 1100	4	3	12	500	6,000	16,800	3%	1,100	1,085	conventional drift	diorite and monz
Auxiliary Headings/ Over break 10%				490	5,280	14,784					
Subtotal Drill Camp Portal				5,390	64,080	**179,424**					
Connecting Raises	1.5	1.5	2	783	1,762	4,933	50 degree	1,450	850	conventional raise	diorite only
Connecting Shaft	5	5	25	600	15,000	42,000	vertical	1,450	850	conventional raise	diorite only
Subtotal Drill Camp Raises				1,383	16,762	**46,933**					
Total Drill Camp with Raises/Shaft				6,773	80,842	**226,357**					

Notes:
For comparison purposes to Drill Camp Option #2, the ramp was again only lowered to the 850 meter level, but the shaft size
was increased to 5m by 5 m to accommodate a double hoist system. Two cross cuts into the depost were again included. The starting elevation is at the 1,450 meter level and ends at the 850 meter level and this results in a lot of margin
for tonnage at 226,357, which is well within tonnage threshold levels of designated office approval of 250,000 tonnes.

Drill Camp Portal - Option 4

Ramp size	**5m*4m**
Ramp length	**850 level**
Cross Cut #1	1100 level
Cross Cut #2	850 level
Shaft Size	**3m*3m**

Item	*Heading width m*	*Heading height m*	*Heading Area m2*	*Heading length m*	*Heading volume m3*	*Heading tonnes*	*Heading Grade %*	*Start Elev m*	*End Elev m*		
								1,450	1,450		
Drill Camp Z Ramp **	5	4	20	4,000	80,000	224,000	15%	1,450	850	conventional ramp	diorite only
Lower Cross Cut 850	4	3	12	400	4,800	13,440	3%	850	838	conventional drift	diorite and monz
Upper X Cut 1100	4	3	12	500	6,000	16,800	3%	1,100	1,085	conventional drift	diorite and monz
Auxiliary Headings/ Over break 10%				490	8,480	23,744					
Subtotal Drill Camp Portal				5,390	99,280	**277,984**					
Connecting Raises	1.5	1.5	2	783	1,762	4,934	50 degree	1,450	850	conventional raise	diorite only
Connecting Shaft	3	3	9	600	5,400	15,120	vertical	1,450	850	conventional raise	diorite only
Subtotal Drill Camp Raises				1,383	7,162	**20,054**					
Total Drill Camp with Raises/Shaft				6,773	106,442	**298,038**					

Notes:

For comparison purposes to Drill Camp Option #3, the ramp was again only lowered to the 850 meter level, but the ramp size was increased to 5m by 4 m and the shaft size was held to 3m * 3m. Two cross cuts into the depost were again included. The starting elevation is at the 1,450 meter level and ends at the 850 meter level.

This scenario results in tonnage of 298,035 that exceeds the designated office threshold level of 250,000 tonnes and also includes the inefficiency of a single hoist system. Even without raises and a shaft, the tonnage levels at 277,984 exceed the designated office tonnage threshold.

13.0 Financial Summary

PARTIAL EXPENSE STATEMENT FOR TINTINA MINES, RED MOUNTAIN PROJECT

For Red Mountain Claim Groups 1-12

Account	Date	Company	Amount	Subtotals
Mobilization of Drill/Camp	7/7/2006	TransNorth Air Helicopters	$ 5,497	
	10/8/2006	TransNorth Air Helicopters	$ 5,403	
	15/08/2006	Capital Helicopters	$ 8,306	
	26/08/2006	Capital Helicopters	$ 7,375	
	28/08/2006	Capital Helicopters	$ 5,400	
	7/9/2006	Capital Helicopters	$ 5,160	
	18/09/2006	Capital Helicopters	$ 3,347	
	20/09/2006	Capital Helicopters	$ 3,674	
	26/09/2006	Capital Helicopters	$ 1,989	
	9/27/2006	Capital Helicopters	$ 5,865	
	28/09/2006	Capital Helicopters	$ 12,628	
	21/09/2008	Alkan Air	$ 1,124	
	21/09/2009	Alkan Air	$ 1,124	
	24/09/2010	Alkan Air	$ 1,124	
			$ 68,013	**$ 68,013**
Air Transport Crew, Equipment,Fuel and Materials				
	8/10/2006	Capital Helicopters	$ 7,596	
	10/10/2006	Capital Helicopters	$ 3,851	
	12/10/2006	Capital Helicopters	$ 11,262	
	19/10/2006	Capital Helicopters	$ 6,561	
	22/10/2006	Capital Helicopters	$ 2,340	
	26/10/2006	Capital Helicopters	$ 2,692	
	28/10/2006	Capital Helicopters	$ 2,335	
	18/09/2006	Alkan Air	$ 816	
	19/09/2007	Alkan Air	$ 1,124	
	9/30/2006	Big Salmon Air	$ 398	
	10/1/2007	Big Salmon Air	$ 398	
	10/3/2007	Big Salmon Air	$ 398	
	4/10/2006	Big Salmon Air	$ 398	
	10/11/2007	Big Salmon Air	$ 795	
	16/10/2006	Big Salmon Air	$ 398	
	10/17/2007	Big Salmon Air	$ 398	
	22/10/2006	Big Salmon Air	$ 642	
	23/10/2006	Big Salmon Air	$ 642	
	24/10/2006	Big Salmon Air	$ 159	
	25/10/2006	Big Salmon Air	$ 318	
	10/26/2007	Big Salmon Air	$ 636	
			$ 44,154	**$ 112,168**

Account	Date	Company	Amount	Subtotals
Fuel				
	11/9/2006	North 60 Petro	$ 2,330	
	8/28/2006	North 60 Petro	$ 789	
	7/27/2006	North 60 Petro	$ 1,247	
	7/27/2006	North 60 Petro (drums)	$ 6,000	
	9/30/2006	Corvus Industruies	$ 892	
			$ 11,258	**$ 123,426**
Hydrogeology Consulting				
	02/09/2006	EBA Geotechnical & Eng.	$ 12,847	
	30/09/2006	EBA Geotechnical & Eng.	$ 42,290	
	28/10/2006	EBA Geotechnical & Eng.	$ 60,332	
			$ 115,469	**$ 238,895**
Drilling				
	9/30/2006	Core boxes (Carreer Ind.)	$ 1,541	
	10/31/2006	Alliance Sonic Drilling	$ 37,770	
	8/10/2006	Alliance Sonic Drilling	$ 45,281	
	13/10/2006	Alliance Sonic Drilling	$ 26,507	
			$ 111,099	**$ 349,994**
Equipment Rentals				
	9/13/2006	MacPherson Rental	$ 140	
	10/18/2006	MacPherson Rental	$ 350	
	9/30/2006	KB	$ 1,090	
	8/22/2006	Access Consultants	$ 186	
	8/22/2006	39627 Yukon Inc.	$ 53	
	9/30/2006	YES	$ 1,126	
	25/09/2006	Aurora Geosciences Ltd	$ 4,960	
	15/09/2006	Aurora Geosciences Ltd	$ 5,488	
	30/09/2006	Aurora Geosciences Ltd	$ 984	
	30/09/2006	Aurora Geosciences Ltd	$ 4,072	
	15/10/2006	Aurora Geosciences Ltd	$ 1,968	
	30/10/2006	Aurora Geosciences Ltd	$ 2,951	
			$ 23,367	**$ 373,362**
Insurance (field)				
	29/30/06	Lombard	$ 1,126	
			$ 1,126	**$ 374,488**
Camp Cook & helper				
	10/30/2006	Olga Leismeister	$ 8,125	
	10/30/2006	Dennis Brulotte	$ 3,850	
	15/09/2006	Aurora Geosciences Ltd	$ 5,950	
			$ 17,925	**$ 392,413**
Geophysical Study of Red Mountain Claim Groups 1-12				
	16/12/2005	Aurora Geosciences Ltd	$ 14,978	
			$ 14,978	**$ 407,391**

Mine Design/ Geotechnical Site Evaluation

2-Nov-01	NEW ERA Engineering/YES	$	3,082	
9-Dec-05	NEW ERA Engineering/YES	$	1,840	
31-Dec-05	NEW ERA Engineering/YES	$	984	
13-Feb	NEW ERA Engineering/YES	$	300	
6-Mar	NEW ERA Engineering/YES	$	2,414	
2-Apr	NEW ERA Engineering/YES	$	813	
5-Jun	NEW ERA Engineering/YES	$	300	
11-Aug	NEW ERA Engineering	claimed previously		
8-Sep	NEW ERA Engineering	claimed previously		
3-Oct	NEW ERA Engineering	$	10,208	
4-Nov	NEW ERA Engineering	$	13,985	
		$	33,926	**$ 441,317**

Archeological Study of Red Mountain Claim Groups 1-12

	Thomas Consulting	$	5,767	**$ 447,083**

14.0 Statement of Qualifications:

I, Randy Clarkson, of 71 Fireweed Drive, Whitehorse, Yukon, do hereby certify that:

a) I am a graduate of the University of British Columbia (1979) with a Bachelor of Applied Science (Mining Engineering);

b) I am a graduate of the British Columbia Institute of Technology (1974) with a diploma in Mining Technology;

c) I am a registered Professional Engineer in the Province of British Columbia and the Yukon Territory;

d) I have over 25 years of experience in mining engineering, mineral exploration and hydraulics throughout the world;

e) From 1985 to the present I have worked as an engineering consultant, mainly in mining and small hydro, where I have conducted research, exploration programs, drilling, sampling, property verifications, and various studies;

f) I worked extensively on the Red Mountain Project and visited the site several times during the period October 30th, 2005 to October 30, 2006;

h) I authored this report; and

i) I have no financial interest and do not expect to receive any financial interest in the future with Tintina Mines Canada Ltd. or the Red Mountain lode mineral properties.

Randy Clarkson P.Eng.

15.0 REFERENCES & RELEVANT BIBLIOGRAPHY

Reports and Data in Company Files:

Amoco Canada Petroleum Company Ltd., **February 1983**. *Red Mountain Project, Yukon Territory, Project 78-C-005, Property Evaluation and Diamond Drilling Report, 1982.* P. Brown.

Amoco Canada Petroleum Company Ltd., **February, 1982**. *Red Mountain Project, Yukon Territory, Project 78-C-005, Property Evaluation and Diamond Drilling Report, 1981.* P. Brown.

Amoco Canada Petroleum Company Ltd., **February, 1982**. *Red Mountain Project, Yukon Territory, Project 78-C-005, Property Evaluation and Diamond Drilling Report, 1980.* P. Brown.

Amoco Canada Petroleum Company Ltd., February, 1980. *Red Mountain Project, Yukon Territory, Project 78-C-005, Property Evaluation and Diamond Drilling Report, 1979.* P. Brown. Includes: **Korenic, J.A., 1980**. *Red Mountain Project, Progress Report; Project, Major and Minor Element Analysis; Sinclair, W. D., 1980. Potassium-Argon Age Determination.*

Amoco Canada Petroleum Company Ltd., **February, 1982.** *Red Mountain Project, Yukon Territory, Project 78-C-005, Property Evaluation and Diamond Drilling Report, 1978.* P. Brown.

Amoco Canada Petroleum Company Ltd., **December, 1983**. *(Manuscript) Geology and Mineralization of the Red Mountain Porphyry Molybdenum Deposit, South Central Yukon.* P. Brown and B. Kahlert.

Amoco Canada Petroleum Company Ltd.//**Control Data, Canadian Comsource Centre; 1982**. *Digitized drill logs and surveying data, Proj: J0750, Ref:GC17CCC, 200887, Label: Rich Taylor, 3 magnetic tapes.*

Ashbury, D. W., **October 1982**. (Correspondence) *Preliminary Proposal For the Red Mountain Underground Program.*

Clarkson, R.R., 2007 April 2007. *Preliminary Report on Amoco Road Geotechnical Program.*

Cox, H.H., P. Eng., **November, 1982**. *A Report on Reserves of Molybdenum Mineralization. Red Mountain Property, Yukon Territory.* Includes: **D. W. Asbury, November 23, 1981**. *Possible Undiluted Geological Reserves As Indicated By Widely Spaced Surface Diamond Drilling To Date, Red Mountain Molybdenite Property, Yukon Territory.*

Geotec Consultants Limited, **1979.** *Hydrothermal Alteration, Red Mountain Property, Yukon Territory. (Petrographic Study, 165 thin sections).*

Lakefield Research, April, 1982. *An Investigation of the Recovery of Molybdenum From Samples Submitted by Amoco Minerals Company.* Progress Report No. 1. Project LR2552, D.M. Wyslouzil and I. Underhill.

MacLeod, J. W., P.Eng., January 26, 1981. *Report on Red Mouintain Molybdenum Property, Whitehorse Mining District, Yukon Territory.*

Mountain States Research and Development, January, 1981. *Laboratory Testwork Performed on Molybdenum Porphyry Ore, Project No. 2314.* J.F. Shirley and R. Bhappu.

Payne, J., 1979. *Sample: Smoco 1. Brecciated Altered Felsite.* Vancouver Petrographics Ltd.

Read, P.B., 1979. *Hydrothermal Alteration, Red Mountain Property, Yukon Territory.*

Sabag, S.F., 1992. *Red Mountain Summary Report, 1992*

Sevensma, P.J.H., 1979. *Summary of 1969 Exploration, Fox Group*.

Woodcock, J.R., 1980. *Petrology of the Boswell River Molybdenite Property*. (Amoco Report 1980 Appendix V).

GENERAL REFERENCES (PUBLIC DOMAIN)

Archer Cathro and Associaties, 1972. *Northern Cordillera Mineral Inventory*.

Armburst, G.A. et al, 1977. *Rubidium as a Guide to Ore in Chilean Porphyry Copper Deposits*. Economic Geology Volume 72

Canadian Institute of Mining and Metallurgy, 1978. Metallurgical Society of CIM, Annual Volume Featuring Molybdenum. J.M. Toguri, Editor. Incorporating Vol. 16, Nos. 104, 1977, of the Canadian Metallurgical Quarterly.

Galey, J.L., 1979. *General Geology and Hydrothermal Alteration of the Silver Bell Porphyry Copper Deposit. Field Conference on Tucson Area Porphyry Deposits.*

Hartland, J.B., 1991. *Molybdenum-Continued Oversupply*. E&MJ, 122nd Annual Survey and Outlook, March 1991.

Lees, E.J., 1936. *Geology of Teslin-Quiet Lake Area, Yukon*. G.S.C. Memoir 203.

Mulligan, R., 1963. *Geology of Teslin Map Area, Yukon Territory (105*C). G.S.C. Memoir 326

Olade, M.A. and Fletcher, W.K., 1975. *Primary Dispersion of Rubidium and Strontium Around Porphyry Copper Deposits, Highland Valley, British Columbia*. Economic Geology Volume 70. No. 1.

Sharp, J.E., 1978. *A Molybdenum Mineralizaed Breccia Pipe Complex, Redwell Basin, Colorado.* Economic Geology, Volume 73.

Sinclair, W.D. et al, 1976. *Mineral Industry Report 1975,* Yukon Territory. Department of Indian and Northern Affairs.

Templeman-Kluit, D.J., 1978. *Geology Map – Laberge Map – Area*. G.S.C. Open File 578.

United States Department of the Interior, Bureau of Mines: *Mineral Commodity Summaries 1991, 1990; Minerals Yearbook 1990; An Appraisal of Minerals Availability for 34 Commodities, Gulletin 692, 1985; Mineral Facts and Problems, Bulletin 667, 1975*

Wallace, S.R., Mackenzie, W.B. et al, 1978. *Geology of the Urad and Henderson Molybdenite Deposits, Clear Creek County, Colorado, with a Section on Comparison of These Deposits with Those of Climax Colorado.* Economic Geology, volume 73.

Wheeler, J.O., 1952. *Geology and Mineral Deposits of Whitehorse Map Area, Yukon.* G.S.C. Paper 52-30.

Section 16.0 Summary of Field Notes

Summary of Red Mountain Field Notes 2006

Soils and Foundation Assessment for Mine Infrastructure - Randy Clarkson

Date	Hole #	Depth	Description
28-Jul	RDS1		tussocks and buck brush, excellent bowl formation, good tailings pond site
28-Jul	RDS2		center line potential dam, el 1296
28-Jul	RDS3	0.61	Glacial Till, sandy/silty cobble till, semi permeable, excellent foundation, elev 1300m
28-Jul	RDS4	0.61	Bouldery layer overlying glacial till, on bench, 1303 m elev
28-Jul	RDS5		Silvo Creek, smaller flat at 1305 m elev
28-Jul	RDS6		west side, smaller flat, only 50-60 m wide, at 1305 m elev, 100 m wide upstream of here
28-Jul	RDS7		west side, Bouldery layer overlying glacial till, on bench, 1297 m elev
26-Aug	RCHADP	0.31	organic and roots
26-Aug	RCHADP	0.61	Colluvium, silty schist flakes
26-Aug	RCHADP	0.91	oxidized, loose weathered schist, 1405 m elev, potential adit location
26-Aug	RCHAPO	O/C	rhyolite and black chlorite schist, near horiz bedding, 45 deg slope, excell location for adit portal
26-Aug	RCHCQ1	0.61	silt/fine sand, glacial till
26-Aug	RCHCQ1	0.91	matrix supported lg cobbles semi-rnd, silty sand, excellent material to seal a dam, no permafrost
26-Aug	RCHCQ3	0.24	moss, black saturated organic soils
26-Aug	RCHCQ3	0.46	jagged and planar talus armoured quartzite schist, no permafrost
26-Aug	RCHCQ3	0.91	silt, irreg small fragments, weathered bedrock?, excellent dam site for foundation conditions
26-Aug	RCHCQ4	0.61	silty/coarse sand, occasional angular rx, young glacial till, terminal moraine, good dam material
26-Aug	RCHCQ5	1.22	deep moss, black saturated organics, permafrost at bottom of hole, not suitable for construction, 1390 m
26-Aug	RCHCQ6	0.76	Saturated black humus and roots
26-Aug	RCHCQ6	1.07	Saturated black silt/till, occasional small cobble
26-Aug	RCHCQ6	1.22	Cobble layer from 1.1 m, poor foundation conditions, probable permafrost, 1353 m elev
26-Aug	RCHCQ7	1.0	long curving terminal moraine, silt/sand/cobble rnd gravel, dry, hard, excell natural dam 10m tall, minor boulder armour on surface, swamp upstream
26-Aug	RCHCQ8	0.6	near ck, boulder/cobble armour over silt/fine sand/coarse sand, rnd cobbles, excel dam foundation area, alt 1345m
26-Aug	RCHCQ9	0.6	Left limit near ck, excellent site for dam

Summary of Red Mountain Field Notes 2006
Soils and Foundation Assessment for Mine Infrastructure - Randy Clarkson 2/2

Date	Hole #	Depth	Description
26-Aug	RCHQ11	0.6	coarse sand, semi rnd clast support cobble glacial till, excellent mill site, good dam building material, alt 1348m
26-Aug	RCHQ12	1.2	middle of swamp on bench, organic humus and roots to bottom permafrost, saturated alt 1310 m poor foundation area
26-Aug	RCHSRG		spring @ 1400 m elev,
26-Aug	RCHAD0		schist outcrop 1479 m elev on GPS, 1490 on altimeter
26-Aug	RCHOC2		2nd outcrop schist, strikes 310 AzMg dip 55 deg, alt 1550 m altimeter, GPS 1525 m, drill pad area
26-Aug	RCHOC3		3rd outcrop on road, 310 AzM, dip 35 deg horfels, 1585m altimeter
6-Sep	RCHSP1		spring small at 1469 m altimeter
6-Sep	RCHDHA		1st drill hole on road above camp, 1470 m altimeter
6-Sep	RCHAP1	0.6	winter airstrip, moss, saturated black humus
6-Sep	RCHAP1	1	boulder layer at 0.6-1 m permafrost underneath - only usable as winter airstrip
6-Sep	RCHAP2	1.2	1/3 way down winter airstrip, saturated black humus and roots over permafrost - poor foundations
6-Sep	RCHAP3	1.2	2/3 way down airstrip, saturated black humus and roots over permafrost, poor
6-Sep	RCHAP4	0.24	end of airstrip, saturated black humus over very large boulder armour layer, poor area for construction
6-Sep	RCHAP5	1	start of airstrip 0.6 m of talus over large boulder area - poor foundation area
20-Sep	RCHAS2	0.9	0.3 m black saturated humus, 0.3-.9 dry clay/silt/weathered rock flour, very poor road and airstrip
9-Oct	RLDS1	0.6	0.2-.3 boulder layer and organics, 0.3-.6 colluvial, clast support irreg frags in clay/sand matrix
9-Oct	RLDS2	0.6	minor organics over brown silt/fine sand/flat schist cobble till, lateral moraine

Photo 1 – Boswell River Falls

Photo 2 – View up Chalco Creek to Red Mountain

Photo 3 – Red Mountain – South Side above Chalco Creek

Photo 4 - Red Mountain Access Road on South Side of Mountain

Photo 5 – Red Mountain – North Side above Amoco Drill Camp

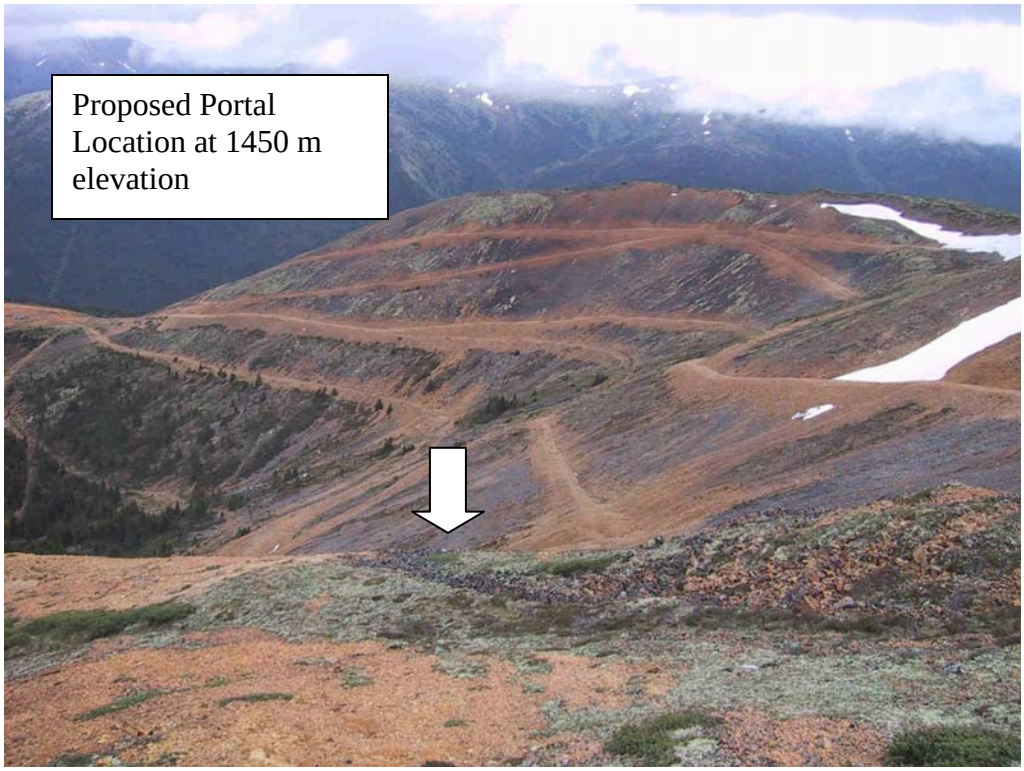


Photo 6 – Approximate Location of Proposed Portal Above Amoco Drill Camp

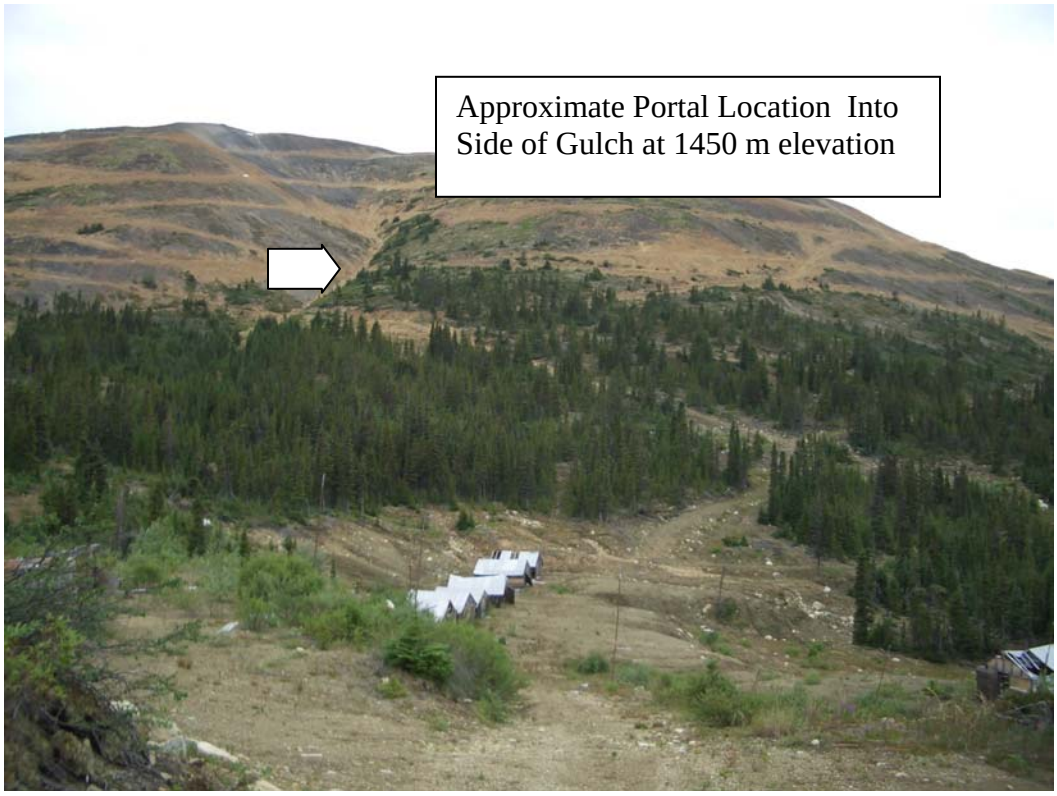


Photo 7 – Amoco Drill Camp from the air

Photo 8 – Amoco Drill Camp on Northeast side of Red Mountain

Photo 9 – Red Mountain from the top – Old Lay Down Area in Center

Photo 10 – Old Lay down Area Suitable for Mill Site near Amoco Drill Camp

Photo 11– Artesian Drill Hole 80-18 on lower northeast side of Red Mountain

Photo 12 – Cirque directly downstream of Amoco Drill Camp
(Possibly Suitable for Tailings Pond)

Photo 13 – Cirque northwest of Drill Camp
(Also maybe suitable for tailings pond)

Photo 14 – Slope of Red Mtn above and west of Proposed Chalco Portal
(Proposed Portal Location near Tree Line, 1470 m)

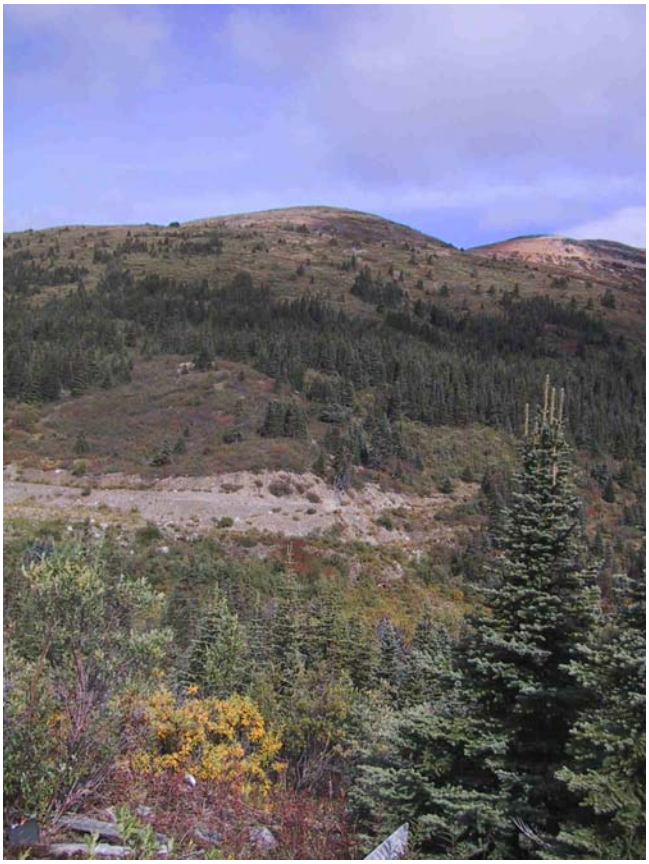


Photo 15 – Outcrop of Slate dipping north at 30 -50 degrees near portal location

Photo 16 – Outcrop Directly Above Proposed Chalco Creek Portal

Photo 17 – Cirque and Unnamed Creek Directly South of Proposed Chalco Creek Portal with potential tailings ponds upstream

Photo 18 – Closeup of Potential Tailings Pond Site South of Chalco Creek

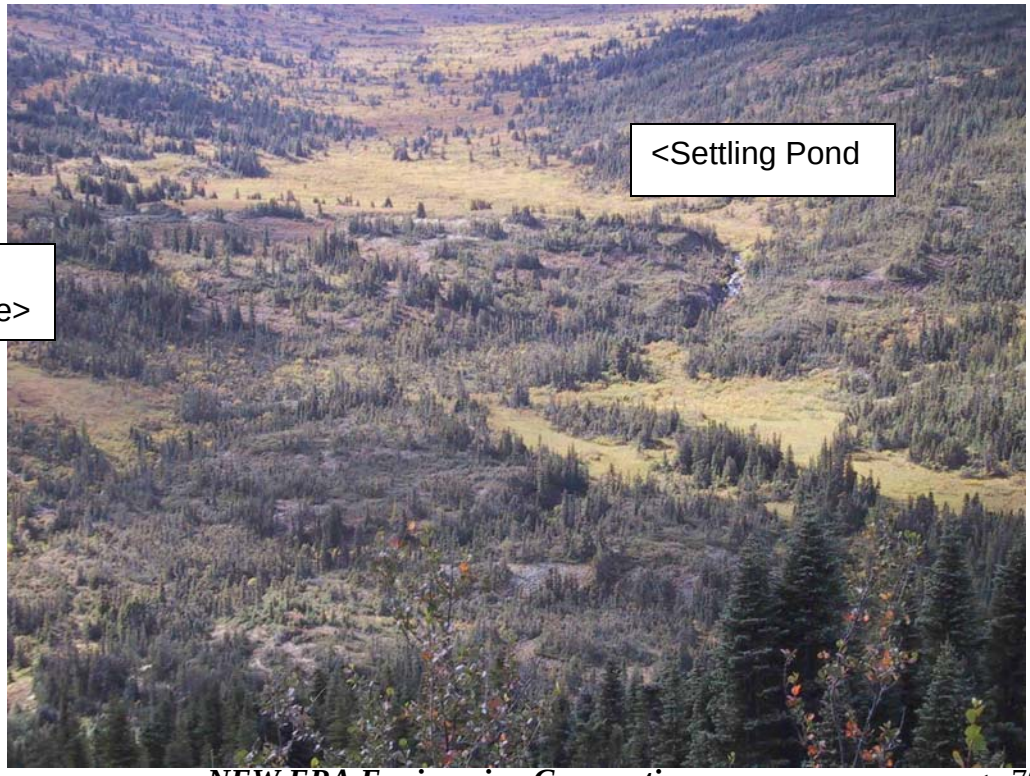


Photo 19 – Winter Airstrip – Unsuitable Saturated Peat Soils

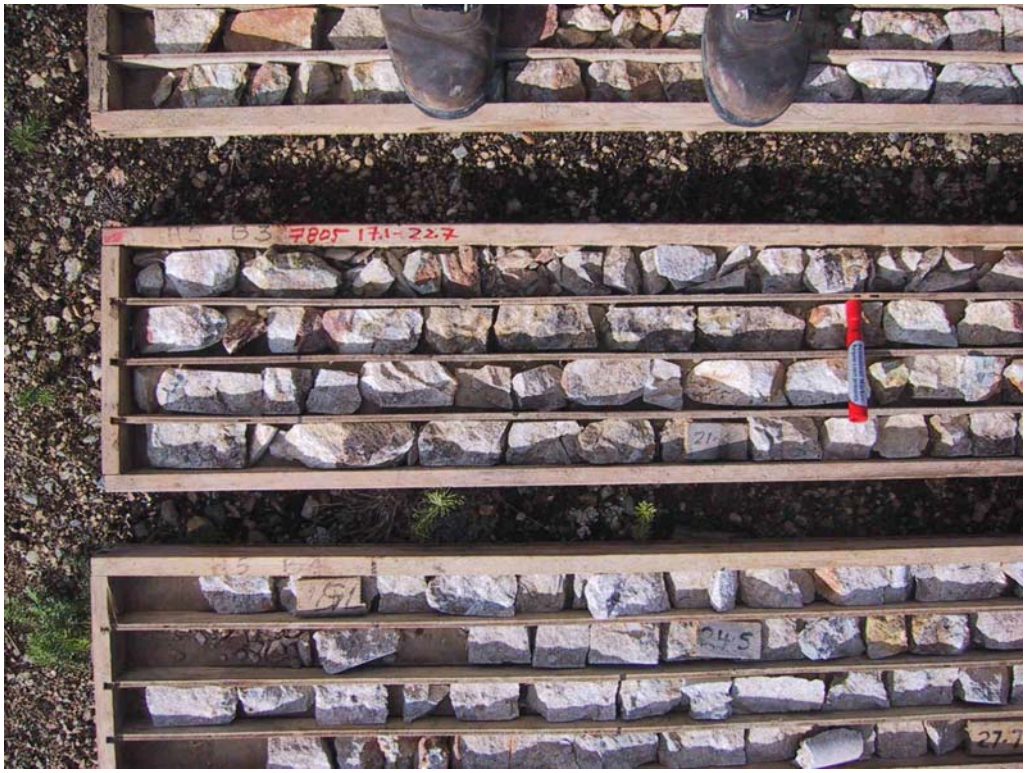
Photo 20 - Drill Hole 78-01 11.7 to 24 m depth

Photo 21 - Drill Hole 78-01 24 to 36.6 meters depth

Note: Poor RQD in shallow sections improving at 20 to 30 m depth

Photo 22 - Drill Hole 78-05 2.4 to 11.5 meters depth

Photo 23 - Drill Hole 78-05 17 to 21.7 meters depth



Note: Poor RQD in hole until at least 25 meters depth

Photo 24- Drill Hole 79-07 3 to 6.9 meters depth

Photo 25 - Drill Hole 78-07 15 to 20 meters depth

Note: Poor RQD at shallow depths to at least 20 meters

Photo 26 Chalco Creek Camp with Portal Sight to the North

APPENDICES

Appendix A – EBA Report

Tintina Mines Limited

SUMMARY REPORT FOR PRELIMINARY HYDROGEOLOGY PROGRAM 2006

RED MOUNTAIN PROJECT

EBA FILE: 1260025

APRIL 2007

EBA Engineering Consultants Ltd.
p. 867.668.3068 • f. 867.668.4349
Calcite Business Centre • Unit 6, 151 Industrial Road • Whitehorse, Yukon Y1A 2V3 • CANADA

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3.3 Kick-off Meeting and Site Reconaissance 3
3.4 Drilling, Testing and Monitor Well Installation 4
4.0 PORTAL OPTION DISCUSSION 7
5.0 CONCLUSIONS AND RECOMMENDATIONS 8
6.0 CLOSURE AND LIMITATIONS 10

STATEMENT OF QUALIFICATIONS (BEHIND SIGNATURE PAGE – PG 11)

TABLES

Table 1: Summary of Lithology for Selected Diamond Drill Holes
Table 2: Hydrogeological Assessment Field Program Log
Table 3: Summary of K Values from Packer Tests on DDH 06-31
Table 4: Groundwater Monitoring Data
Table 5: Summary of Laboratory Chemistry Results for DDH 80-18

FIGURES

Figure 1: Site Plan

APPENDICES

Appendix A: Field Logs
Appendix B: Laboratory Report

1.0 INTRODUCTION AND BACKGROUND

The purpose of this letter report is to provide a summary of all work completed as part of the preliminary hydrogeological assessment study at the Red Mountain Site in 2006 prior to October 30th. This report is intended to partially satisfy the requirements of the Yukon Mining Recorders Office to demonstrate work completed on this Site.

The "Red Mountain" property is located at Slate Mountain, 80 km northeast of Whitehorse Yukon and 20 km west of Quiet Lake. The mine site is currently owned by Tintina Mines Limited (Tintina). Molybdenum was discovered at Red Mountain in the 1960s. Amoco Canada completed approximately 21,000 metres of diamond exploration drilling during the 1970's and 1980's. The results of this exploration drilling have provided sufficient information to pursue an underground exploration program that will consist of a decline portal construction, additional drilling, test mining and bulk sampling.

In July 2006, Tintina requested that EBA Engineering Consultants Ltd. (EBA) prepare a work plan to complete hydrogeological investigations and provide hydrogeological consulting services in relation to the proposed advanced exploration and mine site development. Hydrogeological information is critical for making a portal decision because an advanced exploration portal entrance must be sited such that it will not have perpetual drainage following mine closure. A preliminary understanding (conceptual hydrogeological model) of the hydrogeological regime is also necessary for the permitting process. At the request of Tintina, EBA prepared the methodology for an adaptive Phase 1 hydrogeological assessment with options to adjust the program based on field observations. The EBA proposal was submitted to Tintina on July 13th, 2006.

A kick-off meeting and site reconnaissance was authorized by Tintina and was completed on August 14th 2006 by Dr. Scott Schillereff (EBA) and Ryan Martin P.Eng. (EBA) who visited the site with Kevin Brewer (Tintina) and Randy Clarkson P.Eng (New Era Engineering Limited). The hydrogeology program methodology was then refined based on new information from the site reconnaissance and was provided to Tintina on August 24th, 2007. Tintina provided a written letter of engagement on September 12th, 2007. The objectives of the preliminary hydrogeology program are provided below:

1. To review and interpret existing information and gather additional preliminary hydrogeological and rock quality information to support selection of a portal decline option for subsequent advanced exploration. This will include:
    a. Groundwater regime observations to support development of a conceptual hydrogeological model. As mentioned previously, the portal decline entrance must be sited such that it will not have perpetual drainage following mine

closure. To meet this objective, the entrance must be above the post mine development piezometric elevations; and,

b. Rock type and quality observations.

2. To gather information to be used by the project team for water license submission. This will include:
   a. Baseline groundwater quality;
   b. Preliminary predictions of inflows to the portal decline during advanced exploration;
   c. Preliminary hydrogeological information to be used in a conceptual water balance.
3. To gather the necessary information to support the development of a detailed drilling program for portal design and detailed hydrogeological testing (Phase 2) to be completed following the preliminary investigations.

2.0 METHODOLOGY FOR PHASE 1 PRELIMINARY HYDROGEOLOGICAL ASSESSMENT

At the beginning of the project, it was recognized that it was not possible to provide a field program that will, with certainty, meet all of the objectives and it was understood that the methodology would require adjustments during the program. The detailed methodology for the Phase 1 preliminary hydrogeological assessment developed in consultation with the project team and technical committee was as follows:

- Advance HQ diamond drill holes (DDH) along proposed portal decline alignments (Chalco Portal Option, Boswell Portal Option, Drill Camp Portal Option).

  The presence or absence of poor ground and/or adverse groundwater conditions could decrease or increase the number of holes required. Selected holes could be maintained for long term groundwater monitoring wells.
- Complete rock core logging that would consist of:
  - rock type identification and core photographs;
  - identification of fractures and fault zones; and,
  - RQD analysis.

  Rock core would be preserved to be viewed by others for mineralogy and possible additional structural interpretation. Rock core could also be evaluated by others for ARD/ML potential.
- Packer testing – determination of fracture transmissivity below static groundwater level to be used in preliminary portal influx predictions.
- Pumping tests – to facilitate determination of bulk transmissivity (matrix and fractures) over the saturated interval to be used in preliminary portal influx predictions.
- Field chemistry – monitor groundwater field chemistry during pumping tests to observe changes throughout duration of pumping (Electrical Conductivity (EC), pH, Temperature, TDS, and visual observations of suspended solids).
- Groundwater analyses – collect representative groundwater samples at the end of the long term pumping interval to be analyzed for: total and dissolved metals – including

mercury, nutrients, dissolved oxygen, cyanide, physical parametres (TDS, turbidity, temperature, TSS, pH, EC), and routine parametres (anions, carbonates, alkalinity, hardness).

3.0 WORK COMPLETED

3.1 PROJECT INITIATION AND PROJECT MANAGEMENT

Project initiation and management completed in 2006 included administrative duties, a kick-off meeting to confirm and execute a contract between EBA and Tintina, and on-going project management. Project management included regular liaison and coordination between EBA staff and Tintina, project summaries (by email) indicating work completed, work planned, and any issues and concerns, and invoicing and accounting activities. Over the course of the program, more than 150 emails, 5 memorandums and 3 letters were prepared for Tintina regarding this project prior to October 30th, 2006.

3.2 BACKGROUND REVIEW

Prior to the field program, EBA reviewed available geology maps, records and reports, air photos, the Tintina 3D geologic model, topographic maps and proposed portal/decline locations and orientations. This review was used to identify target drilling locations, orientations and lengths (depths) for the monitor wells to be installed for this project. A site plan showing diamond drill hole (DDH) locations and other site features is provided as Figure 1. A summary table with compiled lithological information for select diamond drill holes that were advanced in the late 70's and early 80's is provided as Table 1.

3.3 KICK-OFF MEETING AND SITE RECONAISSANCE

As mentioned previously, EBA staff (Ryan Martin, P.Eng. and Scott Schillereff, PhD) visited the site on August 14th, 2006 along with Tintina representative Kevin Brewer, and Randy Clarkson of New Era Engineering Limited. This site investigation consisted of the following:

- Assessing overall topographic, geomorphological and hydrogeologic setting;
- Identification of drilling locations for monitor well installations;
- Assessing access for drill rig;
- Assessing water supply availability and requirements for monitor well drilling (by wash-bore wireline drilling);
- Documenting evidence of surface water, ponds, springs or seeps around the entire development area;
- Inspecting existing exploration DDHs and measuring static water levels where accessible;

- Inspecting and photographing core from earlier exploration work to document signs of permeable subsurface features (fault breccia zones, oxide staining, etc.).

3.4 DRILLING, TESTING AND MONITOR WELL INSTALLATION

In accordance with the project's terms of reference and EBA's proposal, all aspects of drilling were arranged and supplied by Tintina. Tintina retained the services of Alliance Sonic Drilling Inc. (Alliance) based in Whitehorse, YT to complete the diamond drilling program. The field program was initiated on Wednesday September 27th when EBA field staff and Alliance personnel were mobilized to the site by helicopter. A field summary table providing drilling activities, flight records and drilling reports is provided as Table 2. The field work completed during this period is described in the sections below:

DDH 06-31

An HQ sized diamond drill hole (06-31) was advanced along the potential Chalco portal alignment at an elevation of approximately 1520 metres above sea level (m-asl) and 6761597 North, 567510 East[1]. Overburden colluvium and extremely weathered bedrock were inferred to exist to a depth of 6 m below grade; however there was no core return. From 6 m to the termination depth of 45.9 m below grade a shale bedrock unit was encountered. In general, the shale was slightly weathered, thinly laminated, grey and black with poor rock quality. Rock quality varied from very poor to fair, but was generally poor (less than 25% RQD), and did not improve with depth. There were several broken zones and some intervals with wash-out and no core return. Groundwater was encountered at a depth of 18.2 m below grade (approximately 1502 m-asl).

With use of the wireline from the drill rig, and packer testing equipment supplied by EBA, single packer tests were carried out on 06-31. Packer test results give the average hydraulic conductivity of the rock mass in the vicinity (several metres) of the packed off interval. This information is useful in combination with hydraulic properties of a larger volume of the rock mass as determined through pumping tests. Packer tests completed in DDH 06-31 are summarized in the table below:

TABLE 3: SUMMARY OF K VALUES CALCULATED FROM PACKER TESTS ON 06-31

Test Interval	Hydraulic Conductivity (K) Range
25.95 to 27.7 m	1×10^{-6} m/s to 2×10^{-6} m/s
27.7 to 31.1 m	1×10^{-6} m/s to 3×10^{-6} m/s

[1],[2] Approximate UTM locations based on hand held GPS data (+/- 10 m), Zone 8.

Estimated "textbook value" ranges of K for shale are published[2] to be $1x10^{-13}$ to 2×10^{-9} m/s. As indicated in Table 3, the calculated values from packer testing completed at DDH 06-31 over the intervals tested were significantly higher than these textbook values. This can be attributed to the significant discontinuities and poor rock quality resulting in water flow through these discontinuities rather than through the shale rock.

Based on the groundwater elevations, rock type and poor rock quality, it was decided by the project team that enough information had been collected to rule out the Chalco portal option. After discussion with Tintina representatives, the hole was aborted and a PVC monitor well was installed for future groundwater elevation monitoring. A length of HW surface casing was left in the ground to provide a monitor well collar to protect the well stick-up, and prevent surfacewater infiltration.

The drilling contractor had significant difficulties in advancing this hole at normal drilling rates due to weather conditions and lack of staff and equipment. The intent was that the drilling company would run two shifts of drillers and helpers to expedite the drilling program and reduce potential problems with freezing during down times. Unfortunately, the second driller that Alliance Sonic had arranged to come to the site backed out at the last minute. At the beginning of the project, the drilling contractor also did not have any water line freeze protection equipment such as coil stoves which are customary while drilling in freezing conditions. As indicated on Table 2, much of the time for drilling DDH 06-31 was spent thawing frozen water lines. The drilling contractor continued to make attempts from the site by satellite phone to locate a second driller. Tintina was made aware of this problem with production, and attempts were also made by Tintina to locate a second driller and the necessary coil stove.

On October 8th, 2006 the drill rig was heli-ported to the next drilling location DDH-24 an existing hole near the top of the mountain (6,762,355 N, 567,745 E[3]).

DDH 81-24

DDH 81-24 was re-mounted with the intent of reaming out the observed blockage in the hole and observing the groundwater elevation to develop the conceptual hydrogeology model and to aid in selection of a portal collar elevation (see Figure 1). This HQ sized diamond drill hole was selected in the field by Randy Clarkson of New Era, and AMOCO diamond drill logs indicate that it was drilled in quartz Monzonite. The grade elevation at this hole is approximately 1590 m. During the re-entry of the hole, ice was encountered from approximately 3 m to 125 m below grade (elevation 1465 m-asl) which indicates that the ground temperatures adjacent to the drill hole are at temperatures permanently below freezing (permafrost) over this interval. Such a thick sequence of permafrost at one location suggests that the permafrost is likely to be large in aerial extent, rather than a localized phenomenon. This is supported by the fact that drill holes at similar elevations and similar

[2] From world wide web: www.aquifertest.com/forum/properties.htm

aspects on the mountain also appear to have ice blockage at approximately 2 m to 3 m below grade (see Table 3). It is unlikely that significant ice exists within the bedrock however, and the top of the ice is not likely attributable to a piezometric surface. It is hypothesized that the top of the piezometric elevation is within the permafrost zone and that since the drilling of the hole, precipitation snowmelt and run-off have entered the open drill hole and frozen layer, eventually rising in the open hole and casing to the bottom of the active layer. A frozen rock zone near the upper reaches of the mountain would inhibit groundwater recharge and groundwater flow; having positive implications on dewatering requirements for advanced exploration and mine development.

Although the drilling contractor did bring in a second driller to begin operating a double shift on October 13th, and coil stoves were utilized to heat water in the water line, there still were significant problems with freeze-up. On October 26th, 2006 the drilling operations were suspended by Tintina, and the drilling crew and EBA field staff was demobilized from the site. Since drilling operations were suspended and the hole was not reamed to below the extent of permafrost; the depth to the piezometric groundwater elevation at this location has not yet been determined.

DDH 80-18

Groundwater from DDH 80-18 was used as a water source for drilling operations. DDH 80-18 is an artesian flowing hole that was capable of supplying water at rates of between 0.3 and 0.45 L/s (approximately 5-7 USgpm) with use of a suction pump. Groundwater temperatures are warmer than surface sources at the time of year that the drilling program was completed, and the proximity of this well to the existing and proposed drilling locations made this an excellent water source. The use of this well also facilitated collection of some useful hydrogeology information. EBA installed a pressure transducer and datalogger to monitor pumping water levels and recovery in this well during use. The datalogger is still installed within DDH 80-18 and once recovered; the data will enable an interpretation of rock transmissivity in the vicinity of this test well.

EBA also collected samples from DDH 80-18 for laboratory analysis of physical parameters, anions and nutrients, total metals and cyanide. Samples were collected in laboratory supplied sample bottles and preserved with lab supplied preservatives as directed by the laboratory. Samples were shipped with a chain of custody form to ALS Environmental in Vancouver for analysis. Laboratory chemistry results are provided Appendix B and are summarized in Table 5.

4.0 PORTAL OPTION DISCUSSION

Although the hydrogeological field program is not yet completed in its entirety, and there is insufficient information to fully characterize the groundwater regime, the information reviewed and collected to date suggest that the best of the three portal options considered is thought to be the Drill Camp option based on rock quality and the hydrogeological conditions.

As indicated previously, the rock quality and groundwater conditions on the potential Chalco decline alignment are not favourable based on the drilling results at DDH 06-31.

No intrusive investigations were completed to evaluate the Boswell Portal option, however, based on the desktop review of existing information, the following comments are offered in comparison of the Boswell Portal option with the other options considered:

1. The Boswell Creek portal would be located at a relatively low topographic elevation, such that the decline would likely advance into saturated rock within a short distance of the portal. As a result of the lower portal elevation and the long length of the decline, the Boswell Creek portal would be continuously producing water at rates that would likely be the highest of all the portal options currently considered. This drainage would persist during the entire operational life cycle of the mine (i.e., decline construction, advanced exploration, mine construction and mine operation). Due to its low topographic elevation, the hydraulic head at the decline walls would be relatively higher than for a portal entering at higher elevations, leading potentially to relatively greater water inflows into the Boswell Creek decline compared with other decline options. In addition, unless the portal was effectively plugged during mine closure, the Boswell Creek decline would be a perpetually draining mine working. The decline will hydraulically connect other underground mine workings near the highest groundwater elevations on the mountain to the portal entrance therefore increasing the pressure head for a portal completed at a lower elevation. The degree of technical challenge in plugging the portal would depend on hydraulic conditions in the immediately surrounding rock mass, which are currently unknown.

2. The relatively higher water drainage from the Boswell Creek decline would necessitate a relatively greater effort and infrastructure to collect, convey, store and treat discharging mine water. This would incur relatively higher costs and operational planning compared with other portal options.

3. An estimate of the hydrogeologic conditions and rate of water inflow to a decline is a requirement of obtaining the necessary water license in Yukon. To determine these conditions and estimated flow rates, a program of drilling, hydraulic testing and water sampling would be required along the very long and deep Boswell Creek decline trajectory. To properly characterize and test the rock mass along this proposed Boswell Creek decline would incur the highest cost of any of the options currently considered. Estimated scope and costs could be provided upon request.

In summary, the information collected to date for the northeast side of the mountain suggests that, due to the presence of permafrost and relatively competent rock deposits, the Drill Camp Portal Option appears most favourable at this time, however, additional work is necessary to confirm this.

5.0 CONCLUSIONS AND RECOMMENDATIONS

For inclusion in a mine assessment report for the Mining Recorders office, the following conclusions provide a summary of work completed on the Tintina Mines Limited claims prior to October 30th, 2006:

- A diamond drilling program was completed between September 26th and October 27th 2006 to facilitate hydrogeological investigations.
- Alliance Sonic drillers and helpers were on site for set-up and drilling between September 27th and October 26th.
- EBA field staff was on site between September 27th and October 26th during the drilling and testing program. In total, EBA spent approximately **780** hours, and accrued hourly charges and equipment rental and disbursement costs totalling **$112,350** while completing the work described herein (prior to October 30th, 2006). The hydrogeological information collected is summarized below:
    - Background information was collected, reviewed and compiled;
    - Surveyed groundwater elevations using a hand held GPS and water level sounder at existing DDHs, and surfacewater and springs where possible;
    - Drilling was observed and core was inspected logged at 06-31 and DDH 81-24;
    - One monitor well was installed at DDH 06-31;
    - Packer tests were completed at DDH 06-31;
    - A datalogger was installed in DDH 80-18 to collect drawdown and recovery data; and,
    - Groundwater was sampled from DDH 80-18 for laboratory analysis.
- Along with drilling personnel and EBA field staff, a camp cook and a maintenance person were at the site over the duration of the program.

The drilling program and hydrogeological testing program was not completed due to extenuating circumstances and hence much of the hydrogeological information necessary to

fulfill the objectives could not be collected. Additional work is necessary to characterize the hydrogeology and confirm a portal option. It is recommended that the remainder of the hydrogeology program should include as a minimum:

- Complete the re-entry and reaming of ice in one DDH near the top of the mountain to establish permafrost conditions and the high groundwater elevation (expected to be confined below the permafrost). Depending on how and when the program is resumed, it may be more cost-effective to ream DDH 81-27 that is 70 m to the southeast and at a similar elevation and aspect on the mountain, rather than to continue on the existing hole. Reaming of this drill hole which is also in Monzonite could provide confirm existence and extent of permafrost at this location; and, provide the groundwater elevation at this location on the mountain (critical to understanding the hydrogeological regime);
- Retrieve the datalogger from DDH 80-18, and analyze data;
- Advance two new DDH (see proposed location of 06-32, a proposed deep drill hole in the Quartz Eye Diorite, and another angle hole through the Plug Fault) including core logging;
- Complete a second full suite of groundwater elevations in new and existing DDH.
- Complete packer testing, pumping tests and groundwater chemistry analysis as previously recommended; and,
- Hydrogeological investigations should be completed in the area of the proposed mill site and tailings impoundment.

6.0 CLOSURE AND LIMITATIONS

This report has been prepared for the exclusive use of Tintina Mines Limited and the Government of Yukon Mining Recorders Office. It has been prepared in accordance with generally accepted hydrogeological practices. For further limitations regarding the use of this report, reference should be made to the EBA Environmental Report – General Conditions, which form a part of this report.

EBA trusts that this summary report satisfies your present requirements. Should you have any questions or comments please do not hesitate to contact the undersigned.

Yours truly,
EBA Engineering Consultants Ltd.

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Statement of Qualifications:

I, Ryan Martin, of 2A Hayes Place, Whitehorse, Yukon, do hereby certify that:

a) I am a graduate of Queens University in Kingston Ontario (1995) with a Bachelor of Science degree from the Faculty of Applied Science (Civil - Environmental Engineering);

b) I am a graduate of Queens University in Kingston Ontario (1997) with a Masters of Science in Engineering (with specialization in hydrogeology, water chemistry, and site investigations);

c) I am a registered Professional Engineer in the Yukon Territory;

d) I have over 10 years of experience in environmental and hydrogeological aspects of engineering projects in Yukon, British Columbia, and the Northwest Territories;

e) From 1999 to the present I have worked as an engineering consultant in Yukon, mainly in water supply, contaminated sites assessment and environmental and hydrogeological aspects of mining projects, where I have conducted research and field investigations including drilling, sampling, and various other related studies;

f) I worked extensively on the Red Mountain Project, visited the site several times, and spent more than 25 days on the site during the period August 14th, 2006 to October 30, 2006;

h) I authored the “Summary report for preliminary hydrogeological program 2006 (EBA, April 2007)”; and,

i) I have no financial interest and do not expect to receive any financial interest in the future with Tintina Mines Canada Ltd. or the Red Mountain lode mineral properties.

Ryan Martin, M.Eng., P.Eng.

ENVIRONMENTAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

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2.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of EBA's investigation. The client, and any other parties using this report with the express written consent of the client and EBA, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and EBA, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that EBA is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the client.

2.1 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of this report, EBA may have relied on information provided by persons other than the client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

3.0 LIMITATION OF LIABILITY

The client recognizes that property containing contaminants and hazardous wastes creates a high risk of claims brought by third parties arising out of the presence of those materials. In consideration of these risks, and in consideration of EBA providing the services requested, the client agrees that EBA's liability to the client, with respect to any issues relating to contaminants or other hazardous wastes located on the subject site shall be limited as follows:

1. With respect to any claims brought against EBA by the client arising out of the provision or failure to provide services hereunder shall be limited to the amount of fees paid by the client to EBA under this Agreement, whether the action is based on breach of contract or tort;
2. With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject site, the client agrees to indemnify, defend and hold harmless EBA from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by EBA, whether the claim be brought against EBA for breach of contract or tort.

4.0 JOB SITE SAFETY

EBA is only responsible for the activities of its employees on the job site and is not responsible for the supervision of any other persons whatsoever. The presence of EBA personnel on site shall not be construed in any way to relieve the client or any other persons on site from their responsibility for job site safety.

5.0 DISCLOSURE OF INFORMATION BY CLIENT

The client agrees to fully cooperate with EBA with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The client acknowledges that in order for EBA to properly provide the service, EBA is relying upon the full disclosure and accuracy of any such information.

6.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

7.0 EMERGENCY PROCEDURES

The client undertakes to inform EBA of all hazardous conditions, or possible hazardous conditions which are known to it. The client recognizes that the activities of EBA may uncover previously unknown hazardous materials or conditions and that such discovery may result in the necessity to undertake emergency procedures to protect EBA employees, other persons and the environment. These procedures may involve additional costs outside of any budgets previously agreed upon. The client agrees to pay EBA for any expenses incurred as a result of such discoveries and to compensate EBA through payment of additional fees and expenses for time spent by EBA to deal with the consequences of such discoveries.

8.0 NOTIFICATION OF AUTHORITIES

The client acknowledges that in certain instances the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

9.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The client acknowledges that all reports, plans, and data generated by EBA during the performance of the work and other documents prepared by EBA are considered its professional work product and shall remain the copyright property of EBA.

10.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

FIGURES

78-5
79-6
81-22
80-18
06-32 (PROPOSED QUARTZ EYE DIORITE HOLE)
80-17
80-16A
79-9
78-1
81-25
81-24
82-27
79-14
82-30
79-10
79-11
06-31
SPRING
SPRING
CHALCO CAMP
Chalco Creek
QUARTZ
HORNFELS
QUARTZ EYE
DIORITE
MONZONITE
PORPHYRY
HORNFELS
1592.10
1613.02
1654.12
1555.54
1579.74
5678000
5677000
5678000
5677000
1400
1425
1450
1475
1500
1525
1550
1575
1600
1576
1350
1375
1325
1300
1275
1250
1225
1200
1175
GUB 44
GUB 42
GUB 65
GUB 66
GUB 2
SAM 191
SAM 189
SAM 188
SAM 79FR
SAM 73FR
BUG 10
BUG 7
BUG 6
BUG 12
BUG 1
BUG 9

LEGEND:

- NEW MONITORING WELL
- EXISTING DIAMOND DRILL HOLES

NOTES:

1. DRAWING HAS BEEN ADAPTED FROM ORIGINAL PROVIDED BY YUKON ENGINEERING SERVICES (YES).

0 250 500 750 metres

SCALE 1 : 8000

CLIENT

Tintina Mines Limited

Hydrogeology Field Program 2006
Tintina Mine Site, Yukon

Red Mountain
Site Plan

EBA Engineering Consultants Ltd.

PROJECT NO.	DWN	CKD	REV
1260025	JSB/RMM	JRT	0

OFFICE: EBA-WHSE

DATE: March 28, 2007

Figure 1

Q:\Whitehorse\Data\1260\drawings\Tintina Red Mountain\1260025 Figure 1_DH Plan REV 1.dwg [Figure 1_PLAN] April 02, 2007 - 4:12pm jlucyk

TABLES

TABLE 1: SUMMARY OF LITHOLOGY FOR SELECT DIAMOND DRILL HOLES

Details			Location			Lithology Summary				
DDH	Total Depth (m)	Blockage/ Lost Steel	Easting	Northing	Elevation (m-asl)	From (m)	-	To (m)	Lithology	Casing/ Hole Diameter
78-05	378	346.3	567630	6762760	1418	0	-	2.4	Overburden	NW
						2.4	-	69.7	Breccia - Quartz-Eye Porphyry, Sericitic Quartzite	NQ
						69.7	-	96.5	Aplitic Dyke	BQ
						96.5	-	157.2	Breccia - Quartz-Eye Porphyry, Sericitic Quartzite	
						157.2	-	319.2	Hornfels and Sericitic Quartzite	
						319.2	-	325.7	Quartz Monzonite	
						325.7	-	340.75	Sericitic Quartzite	
						340.75	-	346.3	Quartz Monzonite	
						346.3	-	345	Hornfels (and Sericitic Quartzite)	
						345	-	356.2	Quartz Monzonite	
						356.2	-	358	Hornfels	
						358	-	359.4	Quartz Monzonite	
						359.4	-	361.3	Hornfels	
						361.3	-	378	Quartz Monzonite	
79-06	617.8	N/A	567338	6762652	1447	0	-	21.6	Overburden	HW
						21.6	-	222.5	Hornfels and Sericitic Quartzite	HQ
						222.5	-	223.6	Breccia	NQ
						223.6	-	571.4	Hornfels and Sericitic Quartzite	
						571.4	-	575	Rhyolite Porphyry	
						575	-	579.3	Hornfels and Sericitic Quartzite	
						579.3	-	587	Rhyolite Porphyry	
						587	-	617.8	Hornfels and Sericitic Quartzite	
79-16	567.8	167	568195	6762295	1392	0	-	9.8	Overburden	HW
						9.8	-	103.6	Quartz Monzonite	HQ
						103.6	-	122.1	Hornfels (Biotite)	NQ
						122.1	-	428.1	Quartz-Eye Diorite (Brecciated Sections)	
						289	-	331.3	Highly Sheared (Fault zone)	
						428.1	-	504.3	Breccia	
						504.3	-	567.8	Quartz Monzonite	
80-16A	501.4	N/A	568079	6762507	1384	0	-	11.6	Overburden	HW
						11.6	-	84.4	Quartz Monzonite	HQ
						84.4	-	411.5	Quartz-Eye Diorite (Brecciated Sections)	NQ
						305.5	-	339.7	Fault Gouge	
						411.5	-	459.4	Breccia	
						459.4	-	501.4	Hornfels (Biotite)	
80-17	285.6	167	567817	6762562	1450	0	-	6.1	Overburden	HW
						6.1	-	285.6	Quartz-Eye Diorite	HQ
80-17A	1058.9	731	?	?	?	0	-	16.3	Overburden	HW
						16.3	-	1058.9	Quartz-Eye Diorite	HQ
										NQ
80-18	725.1	N/A	567980	6762679	1370	0	-	25	Overburden	HW
						25	-	63.8	Hornfels	HQ
						63.8	-	65.6	Contact Breccia	NQ
						65.6	-	725.1	Quartz-Eye Diorite	
80-19	925.7	N/A	567675	6762498	1519	0	-	4.3	Overburden	HW
						4.3	-	336.8	Quartz Monzonite	HQ
						336.8	-	346.7	Fault Gouge	NQ
						346.7	-	464.4	Quartz Monzonite	
						464.4	-	467.1	Granodiorite - dyke	
						467.1	-	571	Quartz Monzonite	
						571	-	589.3	Quartz-Eye Diorite	
						589.3	-	622.94	Quartz Monzonite	
						622.94	-	624.6	Quartz-Eye Diorite	
						624.6	-	651.8	Quartz Monzonite	
						651.7	-	672.8	Biotite-Feldspar Porphyry	
						672.8	-	925.7	Quartz Monzonite	
80-20	895.5	289.6	567728	6762242	1578	0	-	7.3	Overburden	HW
						7.3	-	30.9	Quartz-Eye Diorite	HQ
						30.9	-	40.6	Fault Gouge	NQ
						40.6	-	302.2	Quartz-Eye Diorite	BQ
						302.2	-	571.2	Quartz Monzonite	
						571.2	-	617	Quartz-Eye Diorite	
						617	-	630.1	Quartz Monzonite	
						630.1	-	651.9	Breccia	
						651.9	-	671.6	Quartz-Eye Diorite	
						671.6	-	690.9	Breccia (Contact)	
						690.9	-	777.1	Quartz-Eye Diorite	
						777.1	-	792.2	Quartz Monzonite	
						792.2	-	820.3	Quartz-Eye Diorite	
						820.3	-	836.1	Quartz Monzonite	
						836.1	-	840.8	Quartz-Eye Diorite	
						840.8	-	895.5	Quartz Monzonite	
81-24	656.2	320	567641	6762384	1589	?			?	HW
										NQ
81-25	637.6	N/A	567521	6762414	1555	?			?	HW
										HQ
81-26	645	134	567603	6762271	1620	0	-	9.1	Overburden	HW
						9.1	-	134.1	Hornfels (Biotite)	HQ
						134.1	-	164.8	Fault Gouge	NQ
						164.8	-	516.3	Hornfels (Biotite)	
						516.3	-	548	Quartz-Eye Diorite	
						548	-	640.3	Hornfels (Biotite)	
						640.3	-	645	Fault Gouge	
82-27	1066.2	N/A	567702	6762357	1585	0	-	14	Overburden	?
						14	-	136.6	Quartz Monzonite	
						136.6	-	228.6	Hornfels (Biotite)	
						228.6	-	272.5	Fault Gouge	
						272.5	-	295.3	Quartz Monzonite	
						295.3	-	298.4	Fault Gouge	
						298.4	-	312.7	Breccia	
						312.7	-	325.4	Quartz Monzonite	
						325.4	-	351.8	Breccia	
						351.8	-	392.5	Quartz Monzonite	
						392.5	-	458.7	Breccia	
						458.7	-	486.7	Quartz Monzonite	
						486.7	-	518.7	Breccia	
						518.7	-	584.9	Quartz Monzonite	
						584.9	-	587.2	Quartz-Eye Diorite	
						587.2	-	614.1	Quartz Monzonite	
						614.1	-	631.2	Andesite Dyke	
						631.2	-	654.2	Quartz Monzonite	
						654.2	-	700.8	Breccia	
						700.8	-	729.9	Quartz Monzonite	
						729.9	-	1034.2	Quartz-Eye Diorite	
						1034.2	-	1034.8	Breccia	
						1034.8	-	1035	Hornfels	
						1035	-	1037.4	Quartz Monzonite	
						1037.4	-	1040.2	Hornfels	
						1040.2	-	1046.3	Quartz Monzonite	
						1046.3	-	1053.7	Hornfels	
						1053.7	-	1066.2	Quartz Monzonite	
06-31	45.9	N/A	567510	6761597	1520	0	-	5.9	Overburden	HW
						5.9	-	46	Shale - heavily fractured	HQ

Notes:
Lithology information is summarized from AMOCO diamond drill hole logs for all DDHs except 06-31.

TABLE 2: TINTINA RED MOUNTAIN - HYDROGEOLOGICAL ASSESSMENT FIELD PROGRAM LOG

DATE	DAY	FIELD DAY	DRILL ACTIVITY	Drilling Activity				FLIGHT RECORD	TESTING REPORT	COMMENTS
				DRILLING (m)	SETUP/ TEARDOWN	DOWN TIME	# DRILLERS/ HELPERS			
27-Sep-06	Wed	1	Set-up 06-31, camp set-up	0.00	12.00	0.00	1/2	2 Capital helicopters in to shuttle (1 for 8 hours, and other is in for approx. 6.5 hours)		12hrs drill setup
28-Sep-06	Thur	2	Set-up 06-31, camp set-up	0.00	12.00	0.00	1/2	2 Capital helicopters in to shuttle/ set up drill (approx. 2.5 hours each)		12 hrs drill setup
29-Sep-06	Fri	3	Drill HW Casing to 16.5 feet	5.03	0.00	0.00	1/2			5hrs drill setup
30-Sep-06	Sat	4	HW Casing to 31.5, HQ to 31.1 feet	14.05	0.00	2.50	1/2			freeze up downtime
1-Oct-06	Sun	5	HQ to 54.5 feet	6.98	0.00	5.00	1/2	Big Salmon brings load into Boswell Strip. Casing, Jet Pump, Grocs, Helmets		freeze up downtime
2-Oct-06	Mon	6	HQ to 91.1 feet	11.16	0.00	4.50	1/2		1 Packer Test	freeze up downtime
3-Oct-06	Tue	7	No drilling	0.00	0.00	4.00	0/2	Big Salmon Air takes Kenn and Randy M out	Falling Head Test	Freeze up all day.
4-Oct-06	Wed	8	No drilling	0.00	0.00	0.00	1/2	Big Salmon Air brings Kenn back to site	Falling Head Test	Kenn Returns from town.
5-Oct-06	Thur	9	HQ to 131.1 feet	12.20	0.00	5.00	1/2		1 Packer Test	
6-Oct-06	Fri	10	HQ to 149.5'	5.64	0.00	8.50	1/2			Complete freeze up during day. When resume drilling during night shift, rig shifts on supports. Down for night.
7-Oct-06	Sat	11	Install, Tear down	0.00	12.00	0.00	1/2		Water sample from 81-18.	
8-Oct-06	Sun	12	Setup 81-24	0.00	10.00	0.00	1/1	Capital shuttles Randy Clarkson and Erik Nyland to site. Drill move. Helicopter takes out Tammera and Mark.		
9-Oct-06	Mon	13	Setup 81-24	0.00	10.50	0.00	1/1			
10-Oct-06	Tue	14	Set-up 81-24, moving gear to drill camp, pump test 80-18	0.00	8.00	0.00	1/1	Capital Helicopters arrives at approximately 10 AM. Slings gear for day. Leaves about 3:30 PM. Dennis, Randy, Kevin leave.	Monitoring of Pumping and Recovery in 80-18 with pressure transducer and datalogger.	Kevin Brewer in for day.
11-Oct-06	Wed	15	ream 30-100'		2.00	3.00	1/1			

TABLE 2 Cont'd: TINTINA RED MOUNTAIN - HYDROGEOLOGICAL ASSESSMENT FIELD PROGRAM LOG

DATE	DAY	FIELD DAY	DRILL ACTIVITY	Drilling Activity			# DRILLERS/ HELPERS	FLIGHT RECORD	TESTING REPORT	COMMENTS
				DRILLING (m)	SETUP/ TEARDOWN	DOWN TIME				
12-Oct-06	Thur	16	ream 100-152'		2.00	3.00	1/1	Capital Helicopters brings in YES, slings 2 loads from Boswell and some fuel.		
13-Oct-06	Fri	17	ream 152-170'		0.00	11.00	2/3	Capital helicopter brings in a helper, driller and an EBA employee		TAK arrived for shift change
14-Oct-06	Sun	18	ream 260-350'		0.00	10.00	2/2	Capital Hel. Fly Randy C. and Kevin B. for meeting with RMM and Kenn: 4 pm arrival, 5:20 pm departure		
15-Oct-06	Mon	19	no reaming	0.00	0.00	18.50	2/2	Capital helicopter arrive to transport RMM and Randy back to Whitehorse: 2 pm arrival to 3 pm departure		
16-Oct-06	Tue	20	no reaming	0.00	0.00	12.00	2/2			Low on fuel for camp and rig, require secondary pump for rig, EMR inspection - 10:45 am to 11: 15 am
17-Oct-06	Wed	21	no reaming	0.00	0.00	12.00	2/2			Moved pump to secondary staging area
18-Oct-06	Thur	22	no reaming	0.00	0.00	12.00	2/2	Capital arrived 2:30 pm dropped off pump and coil stove	Monitoring of Pumping and Recovery in 80-18 with pressure transducer and datalogger. Recording depth to ice blockage in DDH's.	
19-Oct-06	Fri	23	Pulled out 370 ' then reamed to 410'		12.50	0.00	2/2			Tripped out to replace bit
20-Oct-06	Sat	24	Pulled out 10' reamed back to 410'		0.00	14.75	2/2	Capital Helicopter arrived with Kevin- between 4 - 4:30 pm to air lift Jerry cans of diesel to rig		
21-Oct-06	Sun	25	No drilling- attempt to re-establish water line	0.00	0.00	23.00	2/2	RMM and Randy C in at 2 PM via Capital helicopter. Move some fuel. Tammera, Randy out at approx. 4:30.		
22-Oct-06	Mon	26	No drilling- attempt to re-establish water line	0.00	5.00	23.00	2/2	Kenn returns via Capital with replacement tire for quad, hydraulic pump etc…		RMM and Curtis work on drill camp core shack.
23-Oct-06	Tue	27	No drilling- attempt to re-establish water line	0.00	0.00	23.00	2/2			
24-Oct-06	Wed	28	No drilling- attempt to re-establish water line	0.00	0.00	23.00	2/2			
25-Oct-06	Thur	29	No drilling- attempt to re-establish water line	0.00	4.00	0.00	2/2	Two trips by Alcan Air and 2 trips by Capital to demob crew from camp.		Kevin Brewer sends in Alcan and Capital to clear camp.

Table 4: Groundwater Monitoring Data

Drill Hole	Easting	Northing	Grade Elevation	Depth to Water (m bg) [A]	Depth to Block (m)	Groundwater Elevation	Comments
78-05	567630	6762760	1418	11.2	>50	1407	
79-06	567338	6762652	1447	23.0	>75	1424	
79-09	567424	6762518	1496	2.0	9	n/a	
79-14	568029	6762359	1433	22.0	35	n/a	
79-15	568060	6762473	1397	9.0	23	n/a	
79-16A	568079	6762509	1385	12.0	>50	1373	
80-17	567817	6762565	1451	75.0	n/a	1376	
80-18	567980	6762680	1371	-1.0	n/a	1372	Flowing Artesian at approximatley 0.5 lgpm
80-19	567675	6762498	1519	frozen	3	n/a	Ice [B]
81-21	567599	6762635	1479	7.0	8	n/a	
81-22	567478	6762677	1469	9.0	10	n/a	
81-23	567707	6762600	1462	10.0	19	n/a	
81-24	567641	6762384	1589	frozen	2	n/a	Ice [B]
81-25	567521	6762415	1556	frozen	4	n/a	Ice [B]
81-26	567603	6762271	1620	frozen	4	n/a	Ice [B]
82-27	567702	6762357	1585	frozen	2	n/a	Ice [B]
06-31	567510	6761597	1517	18.3		1499	

A) Depths to groundwater were measured using a Water Level sounder by New Era Engineering Ltd. and/or EBA Engineering Consultants Ltd. in July/August 2006 for all DDHs except 06-31 which was measured in October 2006.

B) Depths to blockage for these holes were measured in July and October 2006. Blockage was level and consistent with ice.

TABLE 5: Summary of Laboratory Chemistry Results for DDH 80-18

	Sample Name:	80-18	CCME Guideline [1]
	ALS Report	L445719	
	Date	7-Oct-06	Water: Freshwater Aquatic Life
	Sampled by:	EBA	
Physical Tests			
Conductivity (Lab)	uS/cm	984	-
Total Dissolved Solids (Lab)	mg/L	758	-
Hardness (CaCO3)	mg/L	535	-
pH (lab)	pH units	7.87	**6.5 - 9**
Turbidity	NTU	54.9	-
Total Suspended Solids (TSS)	mg/L	5.5	-
Anions and Nutrients			
Alkalinity-Total CaCO3	mg/L	148	-
Sulphate	mg/L	404	-
Ammonia Nitrogen N	mg/L	0.023	**1.54**
Nitrate Nitrogen N	mg/L	<0.0050	**13**
Nitrite Nitrogen N	mg/L	<0.0010	**0.06**
Total Phosphate	mg/L	<0.0020	**<0.004** [2]
Total Metals			
Aluminum (Al)-Total	mg/L	<0.010	**0.1**
Antimony (Sb)-Total	mg/L	<0.0010	-
Arsenic (As)-Total	mg/L	**0.240**	**0.005**
Barium (Ba)-Total	mg/L	<0.020	-
Beryllium (Be)-Total	mg/L	<0.0020	-
Bismuth (Bi)-Total	mg/L	<0.20	-
Boron (B)-Total	mg/L	<0.10	-
Cadmium (Cd)-Total	mg/L	**0.000091**	**0.000017**
Calcium (Ca)-Total	mg/L	142	-
Chromium (Cr)-Total	mg/L	<0.0010	**0.001** [3]
Cobalt (Co)-Total	mg/L	0.00077	-
Copper (Cu)-Total	mg/L	<0.0020	**0.004** [4]
Iron (Fe)-Total	mg/L	**4.06**	**0.3**
Lead (Pb)-Total	mg/L	<0.0010	**0.007** [5]
Lithium (Li)-Total	mg/L	<0.010	-
Magnesium (Mg)-Total	mg/L	43.5	-
Manganese (Mn)-Total	mg/L	0.246	-
Mercury (Hg)-Total	mg/L	<0.000020	**0.000026**
Molybdenum (Mo)-Total	mg/L	**0.152**	**0.073**
Nickel (Ni)-Total	mg/L	<0.0020	**0.15** [6]
Phosphorus (P)-Total	mg/L	<0.30	-
Potassium (K)-Total	mg/L	2.1	-
Selenium (Se)-Total	mg/L	<0.0010	**0.001**
Silicon (Si)-Total	mg/L	3.37	-
Silver (Ag)-Total	mg/L	<0.000040	**0.0001**
Sodium (Na)-Total	mg/L	8.2	-
Strontium (Sr)-Total	mg/L	1.51	-
Thallium (Tl)-Total	mg/L	<0.00040	-
Tin (Sn)-Total	mg/L	<0.0010	-
Titanium (Ti)-Total	mg/L	<0.010	-
Uranium (U)-Total	mg/L	0.0185	-
Vanadium (V)-Total	mg/L	<0.030	-
Zinc, (Total)	mg/L	<0.010	**0.03**
Cyanide	mg/L	**0.0058**	**0.005**

Notes:

"<" indicates less than the laboratory detection limit.

- indicates not analyzed or no standards established.

Bold - indicates results exceed CCME Aquatic life guidelines

[1] Canadian Water Quality Guidelines for the Protection of Aquatice Life, Canadian Council of Ministers of the Environment ("CCME"), updated 6.0, July 2006

[2] Standard based on Canadian Trigger Ranges for ultra-oligotrophic, the most stringent of standards.

[3] Standard is for Chromium VI.

[4] Standard is based on hardness (CaCO3) where copper equals; 0.002 mg/L when hardness is 0 - 120 mg/l, 0.003 mg/L when hardness is 120-180 mg/L, 0.004 mg/L when hardness is >180 mg/L.

[5] Standard is based on hardness (CaCO3) where lead equals; 0.001 mg/L when hardness is 0 - 60 mg/l, 0.002 mg/L when hardness is 60-120 mg/L, 0.004 mg/L when hardness is 120 - 180 mg/L, 0.007 when hardness is >180 mg/L.

[6] Standard is based on hardness (CaCO3) where nickel equals; 0.025 mg/L when hardness is 0 - 60 mg/l, 0.065 mg/L when hardness is 60-120 mg/L, 0.110 mg/L when hardness is 120 - 180 mg/L, 0.150 when hardness is >180 mg/L.

TABLE 5cont'd: Summary of Laboratory Chemistry Results for DDH 80-18

	Well	80-18	CCME Guideline [1]
	ALS Report	L448144	
	Date	17-Oct-06	Water: Freshwater Aquatic Life
	Sampled by:	EBA	
Physical Tests			
Dissolved Metals			
Aluminum (Al	mg/L	<0.0050	**0.1**
Antimony (Sb)	mg/L	<0.00050	-
Arsenic (As)	mg/L	**0.227**	**0.005**
Barium (Ba)	mg/L	<0.020	-
Beryllium (Be)	mg/L	<0.0010	-
Boron (B)	mg/L	<0.10	-
Cadmium (Cd)	mg/L	**0.000068**	**0.000017**
Calcium (Ca)	mg/L	143	-
Chromium (Cr)	mg/L	<0.0010	**0.001** [2]
Cobalt (Co)	mg/L	0.00073	-
Copper (Cu)	mg/L	0.0022	**0.004** [3]
Iron (Fe)	mg/L	3.99	**0.3**
Lead (Pb)	mg/L	<0.00050	**0.007** [4]
Lithium (Li)	mg/L	0.0057	-
Magnesium (Mg)	mg/L	46.5	-
Manganese(Mn)	mg/L	0.260	-
Mercury (Hg)	mg/L	<0.000020	**0.000026**
Molybdenum (Mo)	mg/L	**0.160**	**0.073**
Nickel (Ni)	mg/L	<0.0010	**0.15** [5]
Potassium (K)	mg/L	2.7	-
Selenium (Se)	mg/L	<0.0010	**0.001**
Silver (Ag)	mg/L	<0.000020	**0.0001**
Sodium (Na)	mg/L	9.0	-
Thallium (Tl)	mg/L	<0.00020	-
Tin (Sn)	mg/L	<0.00050	-
Titanium (Ti)	mg/L	<0.010	-
Uranium (U)	mg/L	0.0186	-
Vanadium (V)	mg/L	<0.030	-
Zinc (Zn)	mg/L	0.0061	**0.03**

Notes:
"<" indicates less than the laboratory detection limit.
- indicates not analyzed or no standards established.
Bold - indicates results exceed CCME Aquatic life guidelines for total metals

[1] Canadian Water Quality Guidelines for the Protection of Aquatice Life, Canadian Council of Ministers of the Environment ("CCME"), updated 6.0, July 2006

[2] Standard based on Canadian Trigger Ranges for ultra-oligotrophic, the most stringent of standards.

[3] Standard is for Chromium VI.

[4] Standard is based on hardness (CaCO3) where copper equals; 0.002 mg/L when hardness is 0 - 120 mg/l, 0.003 mg/L when hardness is 120-180 mg/L, 0.004 mg/L when hardness is >180 mg/L.

[5] Standard is based on hardness (CaCO3) where lead equals; 0.001 mg/L when hardness is 0 - 60 mg/l, 0.002 mg/L when hardness is 60-120 mg/L, 0.004 mg/L when hardness is 120 - 180 mg/L, 0.007 when hardness is >180 mg/L.

[6] Standard is based on hardness (CaCO3) where nickel equals; 0.025 mg/L when hardness is 0 - 60 mg/l, 0.065 mg/L when hardness is 60-120 mg/L, 0.110 mg/L when hardness is 120 - 180 mg/L, 0.150 when hardness is >180 mg/L.

APPENDIX

APPENDIX A FIELD LOGS

EBA Engineering

ROCK CORE LOG

PROJECT: TINTINA MINE
PROJECT#: 1260025
BOREHOLE#: 06-31.
LOCATION:
DRILLER: SONIC-ALLIANCE
METHOD: DIAMOND DRILL

DATE: SEP 29/06.
LOGGED BY:
COLLAR ELEV.: ~1520 m (not surveyed)
ANGLE: VERTICAL
CORE SIZE: HQ
DATUM TO GROUND: ϕ

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m)	Core Run Information: Run #	Run Length (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
OVERBURDEN - SILT, SAND, GRAVELLY, OLIVE GREY TO OLIVE BROWN, COLLUVIUM	0		•				
	1'						
	4.5						
OVERBURDEN.		1	2.35	ϕ / 2.35			NO RECOVERY - SET CASING DEEPER.
	6.85						
@7.5' boulder.							@ 9.5' Temporarily lost circulation.
@15' boulder. Continued in rock to 16.5'							Broke swivel connection.
	Drilled HW casing to 16.5' End of day.						
Ready to try core barrel. Rain							Ream out casing from 15.4.
15.6-19.85 gravel.	15.6						15.6-19.85 clean out casing overburden to 19.5'
19.5 - BEDROCK.		2	42.5	10/51	ϕ	ϕ	
19.85 - SHALE, thinly laminated, slightly weathered, grey, weak, poor quality, close to very close sp. discont.	19.85	3	1.25	15/15	ϕ	>20	
foliation planes near vertical	21.1		•	•			

5013.CDR

eba

EBA Engineering

ROCK CORE LOG

PROJECT: TINTINA MINE
PROJECT#: 1260025
BOREHOLE#: 06-31
LOCATION:
DRILLER: SONIC ALLIANCE
METHOD: DIAMOND DRILL

DATE: SEP 30 '06
LOGGED BY: RM, RMM, TAK
COLLAR ELEV.: ~
ANGLE: VERTICAL
CORE SIZE: HQ
DATUM TO GROUND: Ø

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m)	Core Run Information: Run #	Run Length (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
21.1 - 26.1 - GREY Shale - thinly laminated, slightly weathered, very poor quality, very close SP Discontinuities planes @ 45°	21.1	4	5	60/60	Ø/60	>20	
~~Fracture~~ Amount stains	26.1						
ik slightly weathered - very fine grained							
26.1 - 31.1 SHALE, GREY-BLACK, VERY FINE GRAINED, THINLY LAMINATED, SLIGHTLY WEATHERED, VERY CLOSE SPACING DISCONTINUITIES, FOLIATION PLANES 40° BEDDING PLANES 45° IRON OXIDE AND SERICITE		5	5'	60/60	12.5/60	720	
SOME SILT AND SAND FILLING, VERY POOR QUALITY	31.1						EXTEND CASING DRILLING DOWN FROM 2:30 - 4 PM
		X					KEEP MAKING PHONE CALLS. ADVANCE CASING TO 31.5' STOP FOR DAY
Oct 1/06 Shale, Grey-Black, very fine grained, thinly bedded, very closely spaced Disc. slightly weathered, poor rock quality, weak	36.1	6	5'	60/60	15/60	11	OCT 1ST, 2006 Resume Drilling @ 12:00 PM
Shale - quartz vein, slight bedding contortion	41.1	7	4'5"	53/60	15/60	12	7 to 11 Core Loss CI in Broken Zone (37' 4" to 38' 2")
Shale - see above		8	5.1'	45/62	4/62	>20	Poor Recovery Major broken zone

5013.CDR

46.2

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EBA Engineering

ROCK CORE LOG

PROJECT: Tinting Mine
PROJECT#: 1260025
BOREHOLE#: 06-31
LOCATION:
DRILLER: Sonic Alliance
METHOD: Diamond Drill

DATE: Oct 1/06
LOGGED BY: RJM, RMM, TAK
COLLAR ELEV.:
ANGLE: Vertical
CORE SIZE: HQ
DATUM TO GROUND: Ø

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m) 46.2	Core Run Information: Run #	Run Length (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
		9	4.9'	Ø/58			
			LOST CORE				
	58.2						
highly weathered, V. Stiff high plastic clay		10	LOST CORE				
	51.1						confirmed depth of hole - core from 46.2 - 51.1 washed.
soft drilling		11	3.4'	Ø/34"			
	54.5		LOST CORE				
Oct 2/06 Shale - highly weathered (see sheet 2)		12	6.6'	69/78	Ø	>20	
		13	48'	53/57	4/57	>20	Confirmed depth of hole
	65.8						
Shale - See above. Fractures thin - 50° very closely spaced discon.	70.9	14	5.2'	58/63	0/63	>20	wash out of core ~0.5'
Shale - thinly Bedded - 40° Fracture - clean vertical - 0° Inclined @ - 71'-721/741-44.8' GOOD Quality Rock	75.5	15	5'	69/60	48/60	10	Pick up fallen core
SHALE - GREY - BLACK, Very fine grained, slightly weathered Thinly Bedded 50-66°, closely spaced discontinuities consisting of bedding planes, near vertical joint from 79.2-79.7' chloride infilling in vertical fracture 81.1		16	5'	60/60	33/60	11	

5013.CDR weak, fair rock quality

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EBA Engineering

ROCK CORE LOG

PROJECT: 1260025 Tranche 1 — DATE: Oct 2/06

PROJECT#: — LOGGED BY: RMM / TAK

BOREHOLE#: 06-31 — COLLAR ELEV.: ~ 1520m

LOCATION: — ANGLE: VERTICAL

DRILLER: SONIC ALLIANCE — CORE SIZE: HQ

METHOD: DIAMOND DRILLING — DATUM TO GROUND: Ø

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m)	Core Run Information: Run	Run Length (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
Shale, grey-black, very fine grained, slightly weathered. Thinly bedded, closely spaced discontinuities consisting of bedding plane fractures @ 81.9 - 83.6' Broken zone 81.9' - 83.6' Intrusive zone of siltstone @ 84' - 85.0' poor rock quality no joint fill, weak steel in	81.1	17	5'	60/60	15/60	>20	completed packer test over interval btwn 85.1 and 91.1m (25.95 - 27.77m) length = 1.82m.
Oct 5/06 Shale, grey black, fine grained slightly weathered joint spacing ~20mm, no joint filling, weak rock strength very closely spaced discontinuities, fractures plane Bedding Plane = 50°, Broken zone 93.8-94.3', Chlorite intrusion @ 94.3 to 94.7	85.4 91.1 96.0	19	5'	49/60	0/60	>20	-lost ~ 1' of core from washout
SHALE, grey black, fine grained, slightly weathered, joint spacing < 20mm (very closely spaced, no joint filling in general, weak rock strength, very closely spaced discontinuities, bedding plane fractures ~ 70° Broken zones at top and bottom of run, some washout, goldish flake infilling @ 90.6 feet, possibly Chalco pyrite.	85.8 91.1	18	5.3'	36/64	0	>20	

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ROCK CORE LOG

PROJECT: TINTINA
PROJECT#: 1260025
BOREHOLE#: 06-31
LOCATION: Red Mountain
DRILLER: Sonic Alliance
METHOD: Diamond drill

DATE: Oct 5, 2006
LOGGED BY: EMM / TAL
COLLAR ELEV.: ~ 1520
ANGLE: Vertical
CORE SIZE: HQ
DATUM TO GROUND: 0

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m)	Core Run Information: Run #	Run Length (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
Shale - greyblack, fine grained, slightly weathered, joint spacing 20-600mm very closely spaced to widely spaced discontinuous Fractures along bedding plan = 60° vertical fracture within chlorite intrusion, weak rock strength, 97.9 to 98.2m where dyke intrusion occurs	96.0	20	5'	42/60	25/60	10	Lost circulation at ~98' b.g (30m) Packer testing between 23.7 - 31.1m
Shale - grey black, fine grained, slight weathering joint spacing ~20cm apart all closely spaced discontinuous fracture following bedding planes = 120° Vertical Fracture between 101.1 to 101.9' weak rock strength, Poor rock quality	101.1' 101.9' 105.3	21	4.5'	55/55	8/55	720	Still no circulation - Drill Casing plugged - Coring Unavailable 1'4"
Shale - See above - joint spacing 20-600mm chlorite infilling in joints, weak rock strength, very close to moderately spaced disc. fractures along bedding planes - 40-50°, no vertical fracturing, Poor rock quality	110.1	22	5'	60/60	18/60	15	Circulation is back ~10' below circulation loss zone
Shale - See above - 20-600mm joint spacing chlorite infill, weak rock, very close to moderately spaced disc. fracturing along bedding plane = 40-50°	116.1'	22	6'	84/72	52/72	10	

5013.CDR

Near vertical faults between 10.9-11.7', Fair rock quality.

EBA Engineering

ROCK CORE LOG

PROJECT: TINTINA MINE
PROJECT#: 1260025
BOREHOLE#: 06-31
LOCATION:
DRILLER: SONIC ALLIANCE
METHOD: DIAMOND DRILLING

DATE: Oct 5/06
LOGGED BY: RMM / TAK
COLLAR ELEV.: ~1520
ANGLE:
CORE SIZE: HQ
DATUM TO GROUND:

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m)	Core Run Information: Run #	Run Length (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
Shale, grey, black, fine grained, slightly weathered, joint spacing, chlorite infill @ in near vertical Fracture, no filling @ in bedding fractures, very close to moderately spaced (<60mm) fractures along bedding plane 30°, near vertical Fracture between 116.1-116.5 / 117.2-118.5 / 120.1-121.1', poor rock quality	116.1'	23	5'	60/60	20/60	8	-pyrite infill @ in non vertical Fault @ (117.2-118.5)
	121.1'						
SHALE, grey black, fine grained, slightly weathered, joint spacing is very closely to closely spaced (20mm - 250mm) bedding plane fractures 30-50° near vertical fracture from 123.5-125' broken zone and likely core loss @ 122.75 → 123.5' 125 → 126.5, some chlorite and chalcopyrite infilling, very weak, very poor quality.	121.1'	(24)	65"	55/65	0/65	9 (not included fragmented zones)	STILL DO NOT HAVE FULL RECOV.
	126.6'						
SHALE, grey black, fine grained, slightly weathered, very close joint spacing, broken zone 127.5' → 131.1', some chlorite + calcite infilling, very weak, very poor rock quality.	131.1'	(25)	54"	54/54	5/54	>20 (6 Not incl broken)	Water Pump Down - Drillers gone 9:25 - 9:55

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EBA Engineering

ROCK CORE LOG

PROJECT: TINTINA MINE
PROJECT#: 1260025
BOREHOLE#: 06-31
LOCATION:
DRILLER: SONIC ALLIANCE
METHOD: DIAMOND DRILLING

DATE: OCT 6/06
LOGGED BY: RMM / TAK
COLLAR ELEV.: 1520 m
ANGLE:
CORE SIZE: HQ
DATUM TO GROUND:

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m)	Core Run Information: Run #	RunLength (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
Shale, grey-black, fine grain, slightly weathered very closely spaced joints (discontinuities), chlorite, quartz + calcite in filling Fractures along bedding plane - 50° Near vertical Fracturing @ 131.2 - 132' & 133 - 133.7' weak rock strength, very poor rock quality	136.1'	26	5'	60/60	9/60	>20	- Water line Frozen - set up hose @ 5:45pm - Begun drilling @ 8:30pm - Depth to bottom below ground = 130.6' - pulled 5' run - poss some core possibly due to washout - broken zone @ 130.6 - 130.9'
Shale - see above - joint spacing = 20mm very closely spaced dist. quartz, pyrite & calcite in filling, weak rock strength Fractures along bedding plane - 40 - 50°, near vertical Fractures @ 136.8 - 138.6', poor rock quality	141.1'	27	5'	60/60	25/60	>20	- broken zone between 136.1 - 136.8' & 140.8 - 141.1'
Shale - See above - very closely spaced dist. ~20mm, chlorite, calcite + quartz infilling, weak rock strength Fracturing along bedding plane - 40 & 50° - Near vertical Fracturing from 142.6 - 145.1' very poor rock quality	146.1	28	5'	60/60	4/60	>20	- broken zone between 141.1 - 142.1' - Switch shifter Ryan @ 11:30pm - Rig almost Tight calcite @ 12pm

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PAGE 7 OF 8

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6 - setup water line
7 - 8:35 - Frozen - Down time
8:35 - began drilling.

EBA Engineering

ROCK CORE LOG

PROJECT: TINTINA MINE
PROJECT#: 1260025
BOREHOLE#: 06-31
LOCATION: RED MOUNTAIN
DRILLER: SONIC ALLIANCE
METHOD: DIAMOND DRILLING

DATE: Oct. 7/06
LOGGED BY: RMM / TAK
COLLAR ELEV.: 1520m
ANGLE:
CORE SIZE: HQ
DATUM TO GROUND:

Description: Type, Color, Texture, Bedding, Jointing, Fracturing, Alteration, Faulting, Hardness, Cementing, Ice, Etc.	Depth (m)	Core RunInformation: Run #	RunLength (cm)	CR (cm/cm)	RQD (cm/cm)	FF	Notes: Boring, Testing and Sampling Procedures; Water Loss; Hole Caving; Grouting; Groundwater Level; Rod Drops; Breakdown; Start, End, Run Drilling Time; Rod Vibration; Etc.
shale, grey, fine grained slightly weathered, 20-60cm joint spacing - very closely spaced fissile, calcite + quartz in filling, weak rock strength, fracturing along bedding planes - 50-60° from vertical fracturing between 148.7-149m / 149-150° poor rock quality	150.6	(29)	45	54/54	16/54	720	- Last core Run from Last night.
SLOUGH TO	149.5						
- INSTALL PVC TO	149.5						
30' SLOT N	3/16	holes (600 in total)					
- solid TO ~ 2' above surface.							

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Rock Core Discontinuity Log

Project:	TINTINA MINE	**Project No.:**	1260025
Location:		**Date:**	SEPT 30/06
Borehole No.:	06-31 **Azimuth:**	**Dip:**	
Easting:	**Northing:**	**Elevation:**	

Depth along BH axis	Lithology	Disc. Type	Opening	Roughness	Filling	Angle off ~~horiz.~~ axis	Remarks
22'2"-23'2"	SHALE	J	OPEN	SMOOTH-UNDUL	N (none)	0° (vertical)	near vertical
23'10"-	"	Sl	O	PS (planar-smooth)	N	30°	
24'3"	"	Fp	O	PR	N	50°	
24'5"	"	Fp	O	PR	N	50°	
24'6"	"	Fp	O	PR	Si	50°	
24'9"	"	Fp	O	PR	N	50°	
25'5"	"	J	O	SR	Ox	50° (opp)	
25'6"	"	J	O	SR	Ox	80°/80°	
25'9"	"	Bp	O	PS	Ox	40°	
25-27'4"	"	J	O	PS	Ca, Ox	0°	near vertical
27'6"	"	Sl	O	PS	N	50°	
27'8"	"	Fp	O	PR	N	60°	
28'2"	"	Fp/J	O	UR	N	60°	
28'2"-30'6"	"	J	O	UR	Ox, Cl	0°	near vertical
28'7"	"	Bp/Sl	O	PS	N	30°	
29'1"	"	Fp	O	UR	N	60°	
29'4"	"	Fp/Sl	O	PS	N	45°	
29'9"	"	Fp/Sl	O	PR	N	50°	
29'11"	"	Fp Sl	O	PS	Cl, Hw	30°	
30'3"	"	Bp Sl	O	PS	Ca	20°	Fossil (Brachell)
30'6"	"	Bp Sl	O	PS	Cl, Hw	30°	
31'8"	SHALE	J	O	P-R	N	70°	
31'9"		J	O	P-R	N	70°	
32'		J	O	P-R	N	70°	
32'7"		J	O	P-R	N	70°	
32'8"		J	O	P-R	N	70°	
32'10"							Mechanical
33'2"		J	O	P-R	N	70°	
33'7"		J	O	P-R	N	70°	
33'7"-35		Bz			HW		

Oct. 1/06 (11)

Type	J-Joint; F-Fault; Sl-Slickensides; Fp-Foliation Planes, Fs-Foliation Shears; Bz-Broken Zone; V-Vein; Bp-Bedding Plane
Opening	C-Closed; O-Open; F-Filled
Roughness	Primary term: U-Undulating;P- Planar; S-Stepped Secondary term: R-Rough, S-Smooth; Sl-Slickensided
Filling	N-None; Si-Silt; Sa-Sand; Cl-Clay; Br-Broken rock; Ox-Oxide; St-Staining; F-Fresh; Sw-Slightly weather/altered rock; L-Limonite; Se-Serecite; M-Mica; Ch-Chlorite; Ot-Other
Remarks	Core Loss; Degree of Water Return; Head Pressure

EBA Engineering Consultants Ltd.

Rock Core Discontinuity Log

Project:	Tintina Mine			**Project No.:**	1260025
Location:				**Date:**	Oct. 1/06
Borehole No.:	06-31	**Azimuth:**		**Dip:**	
Easting:		**Northing:**		**Elevation:**	

Depth along BH axis	Lithology	Disc. Type	Opening	Roughness	Filling	Angle off horiz.	Remarks
35'4"	Shale	J	O	P-S	N	45°	
35'9"	✓	Sl.	O	P-S	Cl	60°	
36'2"	✓	Sl.	O	P-S	N	60°	
31.3'-32'	SHALE	J	O	P-S	N	0°	Vertical shear
32'10"-34'	✓	J	C	—	2mm Ca-Cl	0°	Vertical shear
34'-34'4"	✓	J	O	P-R	Ca-Cl	0°	Vertical shear
35'10"	✓	J	O	P-S	Cl	60	
36'4"	"	Bp	O	P-SL	N	40°	
36'9"	"	Bp	O	P-SL	N	30°	
37'1"	"	Bp	O	P-R/SL	N	30°	
37'2"	"	Bp	O	P-R/SL	N	30°	
37'4"-38'2"	"	Bz	—				Core Loss
38'8"-39'	"	Bz	—				"
39'6"	"	Bp	O	P-SL	N	60°	
40'	"	Bp	O	P-SL	N	60°	
40'3"	"	Bp	O	P-SL	N	60°	
40'6"	"	Bp	O	S-SL	N	60°	
40'8"	"	J	O	S-S	N	10-30°	
41'3"	"	Bp	O	P-R	N	40°	
41'8"	"	Bp	O	P-S	N	40°	
41'8"→46'2"	"	BROKEN ZONE					

Type	J-Joint; F-Fault; Sl-Slickensides; Fp-Foliation Planes, Fs-Foliation Shears; Bz-Broken Zone; V-Vein; Bp-Bedding Plane
Opening	C-Closed; O-Open; F-Filled
Roughness	Primary term: U-Undulating;P- Planar; S-Stepped Secondary term: R-Rough, S-Smooth; Sl-Slickensided
Filling	N-None; Si-Silt; Sa-Sand; Cl-Clay; Br-Broken rock; Ox-Oxide; St-Staining; F-Fresh; Sw-Slightly weather/altered rock; L-Limonite; Se-Serecite; M-Mica; Ch-Chlorite; Ot-Other
Remarks	Core Loss; Degree of Water Return; Head Pressure

APPENDIX

APPENDIX B LABORATORY REPORTS

ANALYTICAL REPORT

EBA ENGINEERING CONSULTANTS LTD.

ATTN: RYAN MARTIN

CALCITE BUSINESS CENTRE
UNIT 6 - 151 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2V3

Reported On: 27-NOV-06 10:47 AM
Revision: 3

Lab Work Order #: **L445719** **Date Received:** **19-OCT-06**

Project P.O. #:
Job Reference: TINTINA 1260025
Legal Site Desc:
CofC Numbers: 47898

Other Information:

Comments:

Joyce Chow
General Manager, Vancouver

For any questions about this report please contact your Account Manager:

CAN DANG

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

	Sample ID	L445719-1				
	Description					
	Sampled Date	07-OCT-06				
	Sampled Time	06:00				
	Client ID	80-18				
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	535				
	Conductivity (uS/cm)	984				
	pH (pH)	7.87				
	Total Dissolved Solids (mg/L)	758				
	Total Suspended Solids (mg/L)	5.5				
	Turbidity (NTU)	54.9				
Anions and Nutrients	Ammonia as N (mg/L)	0.023				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	148				
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<2.0				
	Alkalinity, Total (mg/L)	148				
	Sulfate (SO4) (mg/L)	404				
	Nitrate and Nitrite as N (mg/L)	<0.0050				
	Nitrate (as N) (mg/L)	<0.0050				
	Nitrite (as N) (mg/L)	<0.0010				
	Total Kjeldahl Nitrogen (mg/L)	<0.050				
	Ortho Phosphate as P (mg/L)	<0.001				
	Total Phosphate As P (mg/L)	<0.0020				
Cyanides	Cyanide, Total (mg/L)	0.0058				
Total Metals	Aluminum (Al)-Total (mg/L)	<0.010				
	Antimony (Sb)-Total (mg/L)	<0.0010				
	Arsenic (As)-Total (mg/L)	0.240				
	Barium (Ba)-Total (mg/L)	<0.020				
	Beryllium (Be)-Total (mg/L)	<0.0020				
	Bismuth (Bi)-Total (mg/L)	<0.20				
	Boron (B)-Total (mg/L)	<0.10				
	Cadmium (Cd)-Total (mg/L)	0.000091				
	Calcium (Ca)-Total (mg/L)	142				
	Chromium (Cr)-Total (mg/L)	<0.0010				
	Cobalt (Co)-Total (mg/L)	0.00077				
	Copper (Cu)-Total (mg/L)	<0.0020				
	Iron (Fe)-Total (mg/L)	4.06				
	Lead (Pb)-Total (mg/L)	<0.0010				

	Sample ID	L445719-1				
	Description					
	Sampled Date	07-OCT-06				
	Sampled Time	06:00				
	Client ID	80-18				
Grouping	**Analyte**					
WATER						
Total Metals	Lithium (Li)-Total (mg/L)	<0.010				
	Magnesium (Mg)-Total (mg/L)	43.5				
	Manganese (Mn)-Total (mg/L)	0.246				
	Mercury (Hg)-Total (mg/L)	<0.000020				
	Molybdenum (Mo)-Total (mg/L)	0.152				
	Nickel (Ni)-Total (mg/L)	<0.0020				
	Phosphorus (P)-Total (mg/L)	<0.30				
	Potassium (K)-Total (mg/L)	2.1				
	Selenium (Se)-Total (mg/L)	<0.0010				
	Silicon (Si)-Total (mg/L)	3.37				
	Silver (Ag)-Total (mg/L)	<0.000040				
	Sodium (Na)-Total (mg/L)	8.2				
	Strontium (Sr)-Total (mg/L)	1.51				
	Thallium (Tl)-Total (mg/L)	<0.00040				
	Tin (Sn)-Total (mg/L)	<0.0010				
	Titanium (Ti)-Total (mg/L)	<0.010				
	Uranium (U)-Total (mg/L)	0.0185				
	Vanadium (V)-Total (mg/L)	<0.030				
	Zinc, (Total) (mg/L)	<0.010				

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-SCR-VA	Water	Alkalinity by colour or titration	EPA 310.2 OR APHA 2320

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.
OR
This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

ANIONS-N+N-CALC-VA	Water	Nitrite+Nitrate by Ion Chromatography	CALCULATION

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG17 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-NO2-IC-VA	Water	Nitrite by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-NO3-IC-VA	Water	Nitrate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 "Determination of Anions by IC

This analysis is carried out using procedures adapted from APHA Method 4110 "Determination of Anions by Ion Chromatography" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Anions are determined by filtering the sample through a 0.45 micron membrane filter and injecting the filtrate onto a Dionex IonPac AG18 anion exchange column with a hydroxide eluent stream. Anions routinely determined by this method include: bromide, chloride, fluoride, nitrate, nitrite and sulphate.

CN-T-MID-HH-COL-VA	Water	Total Cyanide by HH Distillation	APHA 4500-CN "Cyanide"

This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-TOT-CCME-CVAFS-VA	Water	Total Mercury in Water by CVAFS (CCME)	EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-CCME-ICP-VA	Water	Total Metals in Water by ICPAES (CCME)	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA	Water	Total Metals in Water by ICPMS (CCME)	EPA SW-846 3005A/6020

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or

Reference Information

microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020).

MET-TOT-ICP-VA Water Total Metals in Water by ICPAES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-SIE-VA Water Ammonia by SIE APHA 4500-NH3 "Nitrogen (Ammonia)"

This analysis is carried out, on sulphuric acid preserved samples, using procedures adapted from APHA Method 4500-NH3 "Nitrogen (Ammonia)". Ammonia is determined using an ammonia selective electrode.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

PO4-DO-COL-VA Water Dissolved ortho Phosphate by Color APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

PO4-T-COL-VA Water Total Phosphate P by Color APHA 4500-P "Phosphorous"

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". All forms of phosphate are determined by the ascorbic acid colourimetric method. Dissolved ortho-phosphate (dissolved reactive phosphorous) is determined by direct measurement. Total phosphate (total phosphorous) is determined after persulphate digestion of a sample. Total dissolved phosphate (total dissolved phosphorous) is determined by filtering a sample through a 0.45 micron membrane filter followed by persulfate digestion of the filtrate.

TDS-VA Water Total Dissolved Solids by Gravimetric APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total dissolved solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-SIE-VA Water Total Kjeldahl Nitrogen by SIE APHA 4500-Norg (TKN)

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total kjeldahl nitrogen is determined by sample digestion at 367 celcius with analysis using an ammonia selective electrode.

TSS-VA Water Solids by Gravimetric APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TURB-MET-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

Reference Information

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency. The Laboratory control limits are determined under column heading D.L. (Detection Limit)
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

47898

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Calgary, AB #2 - 21 Highfield Circle SE T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
Burlington, ON 5420 Mainway Drive, Unit 5 L7L 6A4 Tel: 905-331-3111 Toll Free: 1-888-257-3684 Fax: 905-331-4567

CHAIN OF CUSTODY FORM

PAGE 1 OF 1

SEND REPORT TO:

CLIENT: EBA ENGINEERING ATTN.: RYAN MARTIN
ADDRESS: UNIT 6 - 151 INDUSTRIAL RD.
CITY: WHSE PROV.: YUKON POSTAL CODE: Y1A 2V3
TELEPHONE: 867 668-3068 FAX: 668-4349 SAMPLER: R. Martin
PROJECT NAME & NO.: Tintina 1260025 QUOTE NO.: EBA price
PO NO.: ALS CONTACT: CAN DANG
REPORT FORMAT: ☑ HARDCOPY ☐ EMAIL - ADDRESS: rmartin@eba.ca
L445 719 ☐ FAX ☒ EXCEL ☒ PDF ☐ OTHER:

ANALYSIS REQUESTED:

Ammonium - N
TKN
Total Metals
Physical - TDS, Turbidity, TSS, pH, EC
Routine Nutrients
* see attached list of D.L.s required

FOR LAB USE ONLY	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	NOTES (sample specific comments, due dates, etc.)
	80-18	2006-10-07	6pm	H_2O	

TURN AROUND REQUIRED: ☑ ROUTINE ☐ RUSH - SPECIFY DATE: _____ (surcharge may apply)

SEND INVOICE TO: ☐ SAME AS REPORT INVOICE FORMAT: ☑ HARDCOPY ☐ PDF ☐ FAX
☐ DIFFERENT FROM REPORT (provide details below)

SPECIAL INSTRUCTIONS:
Note: see attached list of required parameters and detection limits *

RELINQUISHED BY:	DATE: Oct 18.	RECEIVED BY:	DATE: Oct 19
	TIME: 6 PM	MB	TIME: 135
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
	TIME:		TIME:

FOR LAB USE ONLY

COOLER SEAL INTACT? ☒ YES ☐ NO ☐ N/A
SAMPLE TEMPERATURE: 5 °C FROZEN? ☐ YES ☒ NO
COOLING METHOD? ☒ ICEPACKS ☐ ICE ☐ NONE

ALS COPY

APPENDICES

Appendix B – Aurora Geosciences Report

Whitehorse Office
108 Gold Road
Whitehorse, Yukon Y1A 3W2
Phone (867) 668-7672
Fax: (867) 393-3577

www.aurorageosciences.com
aurora@klondiker.com

MEMORANDUM

To: Marco Contreras
Tintina Mines Ltd.

Date: 16 Dec 2005

From: Mike Power

Re: Red Mountain HLEM survey

This memorandum is a short form survey report describing the results of HLEM survey conducted at the Red Mountain Project for Tintina Mines Ltd. The purpose of the surveys was to determine the location and attitude of a fault system near the proposed decline.

a. Personnel & equipment. The surveys were conducted by the following personnel:

October 19-20, 2005

Dave Hildes, P.Geoph.	Geophysicist
Lebole Monagen, B.Sc.	Technician
Andy Sewap	Lead line cutter
Bernard Stehlin	Line cutter

December 7, 2005

Scott Casselman, P.Geo.	Technician
Andy Sewap	Technician
Dave Germaine	Lead line cutter
Matt Olsen	Line cutter

The crew was equipped with the following instruments and equipment:

Instrument:	1	- Apex Parametrics MaxMin I-10
	1	- MMC logger
	1	- 50 m cable
	1	- 100 m cable
	1	- 150 m cable
Other:	1	- Line cutting equipment (chains, prisms)
	2	- Power saws
	1	- 1Ton truck (Oct 19-20 only)

The survey log attached to the project invoice describes operations.

b. Survey specifications. The HLEM surveys were conducted according to the following survey specifications:

Coil spacing:	100 m (first pass - L450N and L750N) 50 m (second pass - L450N)
Station spacing:	25 m (100 m coils) / 12.5 m (50 m coils)
Frequencies:	100 m: 220, 3520, 7040, 14KHz, 28KHz, 56 KHz
Topographic effect:	Coil misalignment and short coiling errors were removed by having the lead (receiver) operator survey the station to station slopes, key these into the MMC and by aligning both transmitter and receiver coils coplanar using the calculated angle when taking measurements. Short coil errors and misalignment errors were subsequently removed during data processing with instrument specific software (Apex MMCFIX2).

c. Data processing & products. The data was corrected for coil misalignment and short coiling errors after dumping. No filtering or editing was performed on the data. The final data is attached on CD-ROM in an Excel spreadsheet together with PDF's of the drawings and a copy of this report. The data set is organized by coil spacing. The following drawings are included with this report:

Figure	Description
Figure 1.	Stacked profiles - 100 m coils - 220 Hz
Figure 2.	Stacked profiles - 100 m coils - 3520 Hz

Figure	Description
Figure 3.	Stacked profiles - 100 m coils - 7040 Hz
Figure 4.	Stacked profiles - 100 m coils - 14,080 Hz
Figure 5.	Stacked profiles - 100 m coils - 28,160 Hz
Figure 6.	Stacked profiles - 100 m coils - 56,320 Hz
Figure 7.	Stacked profiles - 50 m coils - 220 Hz
Figure 8.	Stacked profiles - 50 m coils - 7040 Hz
Figure 9.	Stacked profiles - 50 m coils - 14,080 Hz
Figure 10.	Stacked profiles - 50 m coils - 28,160 Hz

Each plot shows the survey grid relative to UTM NAD83 (Zone 8N) coordinates and displays profiles of the in-phase (solid) and quadrature (dashed) components of the HLEM response. Vertical scales vary depending upon the mean amplitude of the data.

d. HLEM SYSTEM OPERATION THEORY

This section is provided as a reference and describes the HLEM method. The HLEM method involves the use of a pair of separated horizontal coils (Figure MM1). A sine wave of variable frequency is sent through one of the coils to create a time-varying vertical magnetic dipole source. The second coil is a receiver which detects both the primary signal from the transmitting coil and a secondary signal created by magnetic induction in a conductive target in the earth. The HLEM method requires that a sample of the transmitted signal be sent along a wire to the receiver where it is used to synchronize the phase of the receiver with the transmitter. This permits the receiver to remove the effect of the transmitter signal (primary field) and to split the remaining secondary field into two components. One component represents the portion of the secondary field which is synchronized or in-phase with the primary field (in-phase component). The second component is the portion of the secondary field which lags the primary field by one quarter cycle (90^{o}) (quadrature component). The ratio of the in-phase to quadrature components is used to determine the electrical conductance of a target.

HLEM instruments remove the primary field from the signal to leave only the secondary field. By convention, a secondary field in the same direction as the primary field is recorded as positive while a secondary field in the opposite direction to the primary field is recorded as negative. HLEM data is commonly plotted as profiles with the reading plotted at the midpoint between the transmitter and receiver. The reason for this is that the response from a steeply dipping conductor, the most common target of this method, is strongest when the two coils straddle the conductor. Normally, the in-phase response is plotted as a solid line and the quadrature response as a dashed line. By convention,

the data is plotted at the station mid-way between the receiver and transmitter.

The HLEM response of a flat lying body is shown in Figure MM2(a). Magnetic field lines (flux) are directed primarily into the region beneath the transmitter loop. Lenz's Law dictates that the induced secondary field will oppose the primary field. Consequently, at the receiver, both the primary and secondary field will be in the same direction. As a result, the response from a flat lying conductor consists of a positive response over the target. At the edge of the conductor, there is a negative response which occurs when both coils are straddling the edge of the conductor. When either the transmitter or receiver coil is over the edge of the conductor, there is no secondary field and the response is zero. As the depth to the flat lying conductor increases, the strength of the response is attenuated. The effective depth of investigation of the HLEM method for flat lying conductors is approximately 1.5 times the coil spacing.

The HLEM response of a steeply dipping conductor is shown in Figure MM2(b). Field lines from the transmitter are horizontal at a point midway between the two coils and in this orientation, cut the conductor at right angles creating the best coupling. Lenz's Law dictates that the secondary field will oppose the primary field and at the receiver coil, the secondary field is in the opposite direction to the primary field. As a result, the response when profiling over a steeply dipping conductor consists of a trough with peak negative value occurring when the coils straddle the conductor. The flanking positive peaks result from induction effects as the pair of coils are close to but not straddling the conductor. When either of the coils is directly over the target, the response is zero because the primary field is not well coupled with the target (ie it is perpendicular to the edge of the conductor) and little secondary field is created.

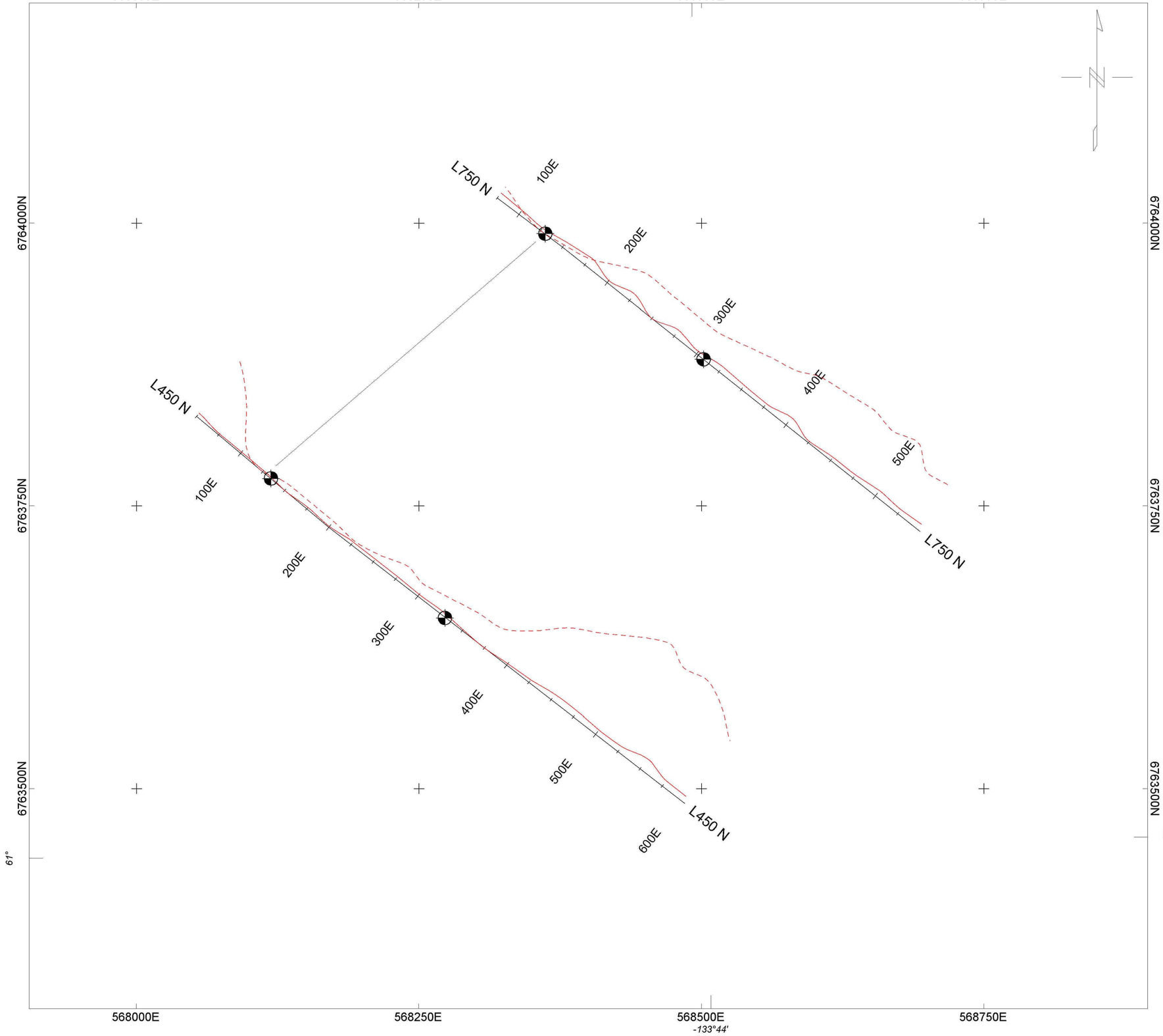
A dipping tabular conductor can be specified by the dip and dip direction, depth to top, target width and electrical conductance (conductivity thickness product or σt). The effect of varying these parameters is shown in Figure MM3 for the case of a response from a single isolated HLEM conductor. Asymmetry in the positive shoulders indicates the dip direction and the ratio of the positive shoulder responses can be used to estimate the dip (Figure MM3(a)). The strength of the response is largely determined by the depth to the top of the conductor. Increasing the depth to the top of the conductor decreases the amplitude of the response but does not otherwise change the shape of the response (Figure MM3(b)). The effective depth of investigation of the HLEM method for steeply dipping targets is approximately one half the coil spacing. If the conductor is wide, the location of the zero crossovers, normally equal to the coil spacing, will increase. If the width reaches approximately one half the coil spacing, the trough of the response for shallow targets will start to deflect slightly to the positive. If the width of the target approaches that of the coil spacing, the positive return in the trough will be apparent at any depth to target (Figure MM3(c)). As noted above, the electrical conductance controls the ratio of the in-phase to quadrature response. Weak targets show only a quadrature response. As the target conductance increases the strength of the in-phase component will increase. Very high conductance targets are characterized by strong in-phase responses and weak to very weak quadrature responses (Figure MM3(d)).

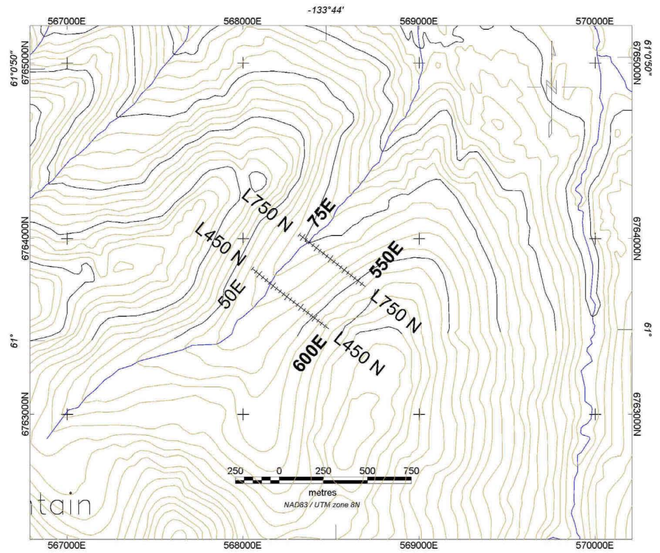
Interpretation procedures for HLEM data are dependent upon the model to which the data is to be fitted. In most cases, the characteristic shape of the response will dictate the likely overall geometry of the source and thus the model to which the response should be fitted. Flat lying targets can be directly modelled with computerized calculations of target responses. Dipping tabular body responses on the other hand cannot be numerically modelled and must either be approximated through finite-element models or interpreted using characteristic curves. Characteristic curves for tabular dipping conductors incorporate several key features of the responses described in Figure 3 into simple charts. These responses are derived from model experiments. The ratio of positive shoulders responses and the ratio of in-phase to quadrature peak negative values are the commonly used features of the response. An example of these charts is shown in Figure MM4.

e. Results. The HLEM survey with the 100 m coils detected a large wide conductive zone extending from approximately 100E to 300 E on both lines. This zone appears at the 100 m coil spacing appears to be caused by at least two separate conductors and it was difficult to determine the attitude of the conductors from the response asymmetry. The survey at 50 m covered L450N and it is readily apparent that there are four discrete conductors in the fault zone defined by the broad conductive zone identified with the 100 m coils. Apparent conductor attitudes in this zone are clearly indicated by the response asymmetry and vary from vertical to both steeply east and west dipping. The presence of multiple conductors, the width of the conductive zone and the fact that the apparent fault zone trace is not deflected by topography as it passes from the top of Red Mountain to the Boswell River strongly suggest that the fault is a vertical to steeply dipping fault, probably with dominant strike-slip displacement.

Respectfully submitted,
AURORA GEOSCIENCES LTD.

Mike Power, M.Sc., P.Geoph.
Geophysicist





LEGEND

HORIZONTAL LOOP EM

FREQUENCY : 220 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 10%

IN PHASE :

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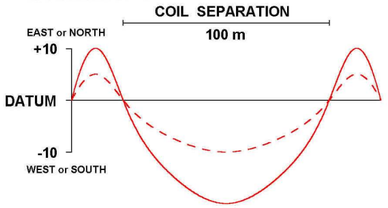

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QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

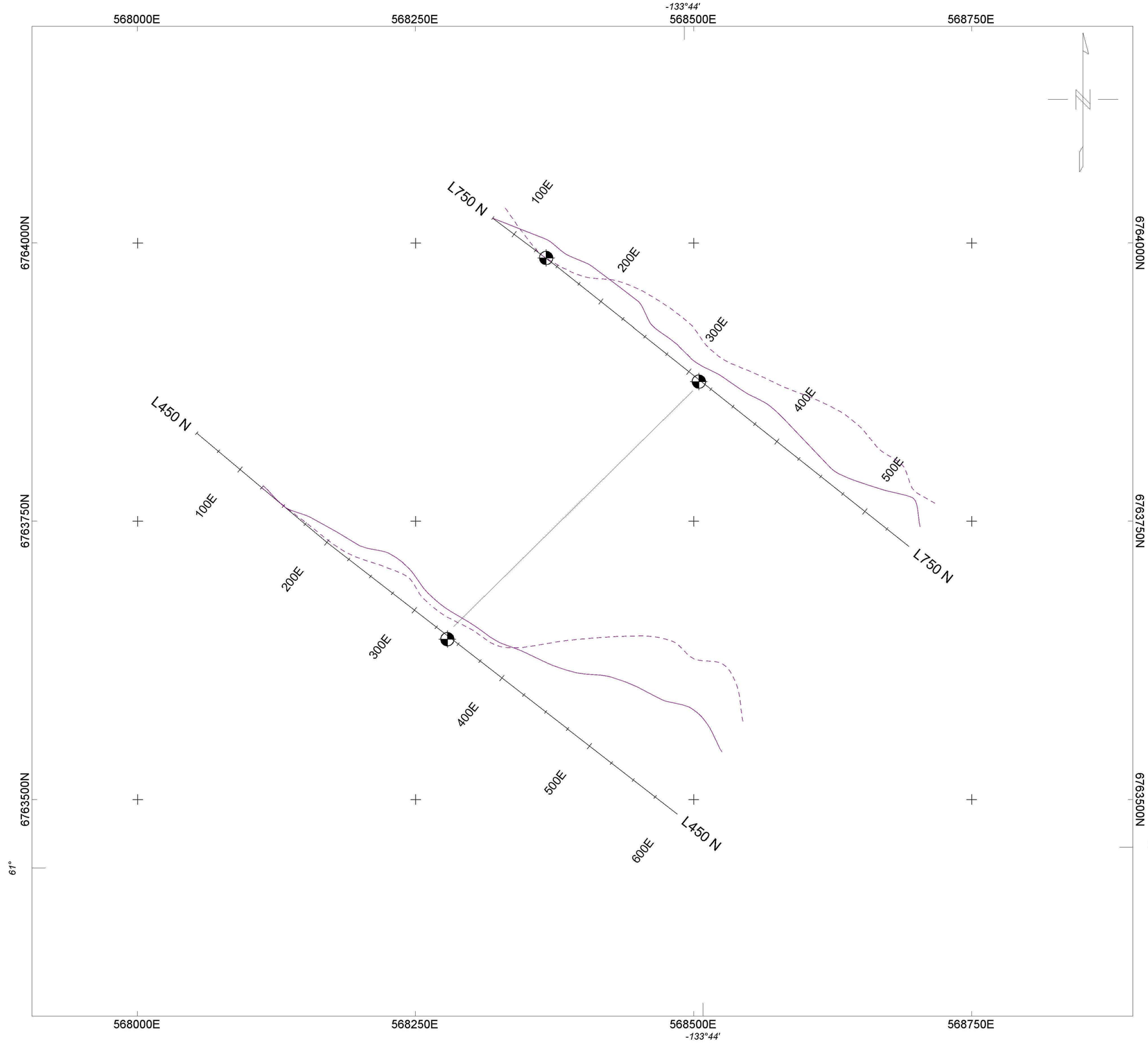
NAD83 / UTM zone 8N

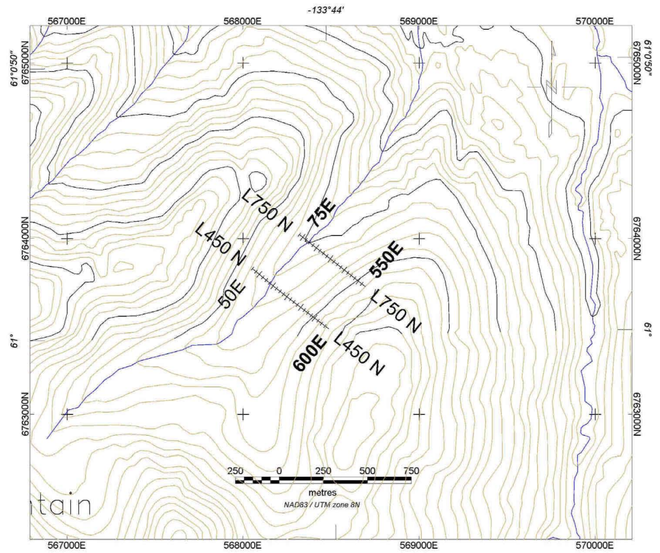
TINTINA MINES LTD.

RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 1. 100 m coils - 220 Hz

NTS: 105 C13 / 105 F 04 — District: Whitehorse
Datum: NAD83 — Projection: UTM Zone 8N
Date: 16 Dec 2005 — Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND

HORIZONTAL LOOP EM

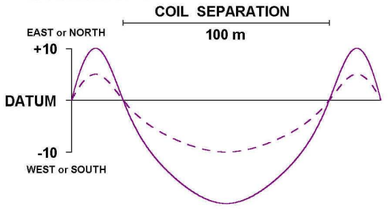
FREQUENCY : 3520 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 10%

IN PHASE :

QUADRATURE :



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QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

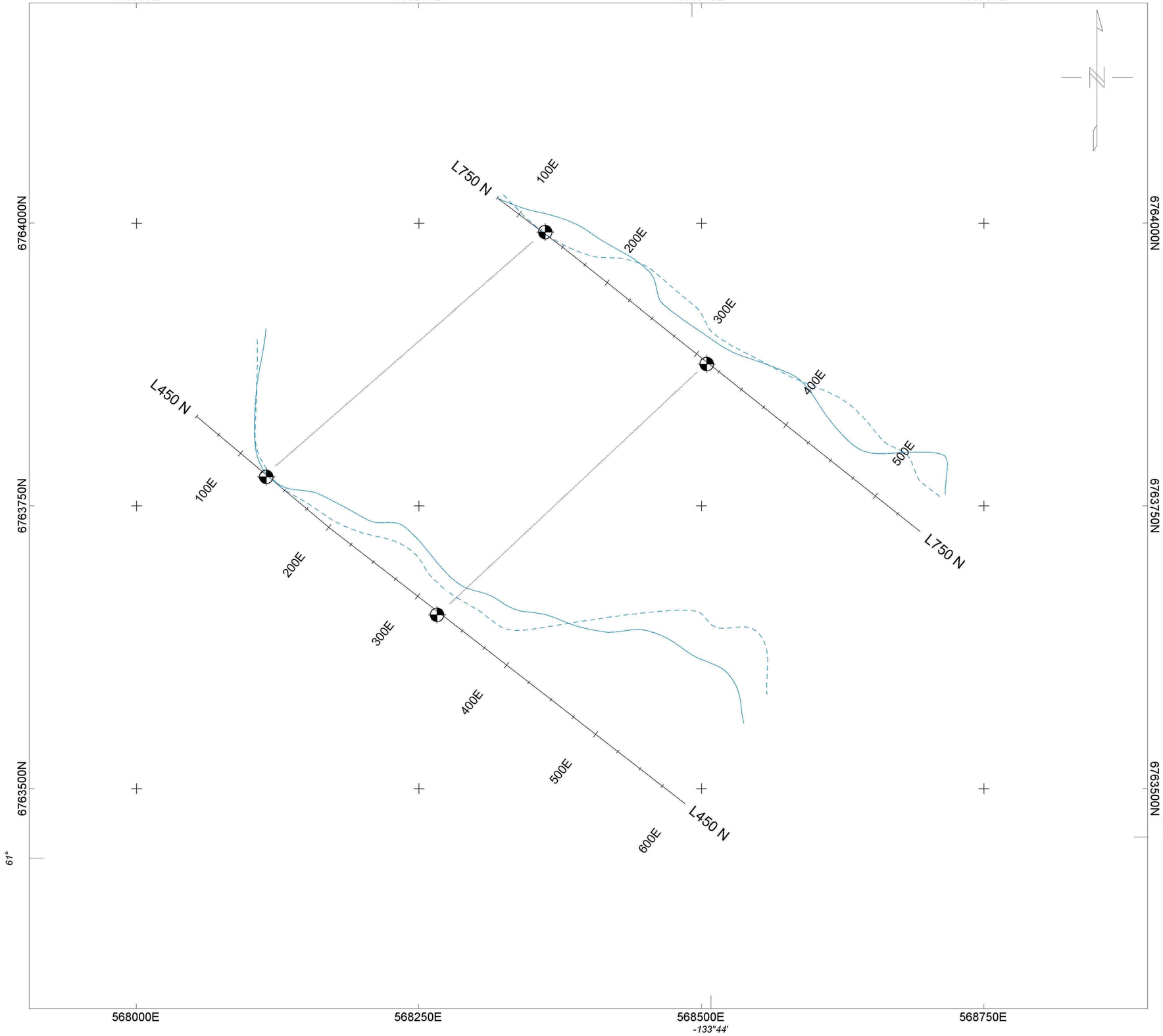
NAD83 / UTM zone 8N

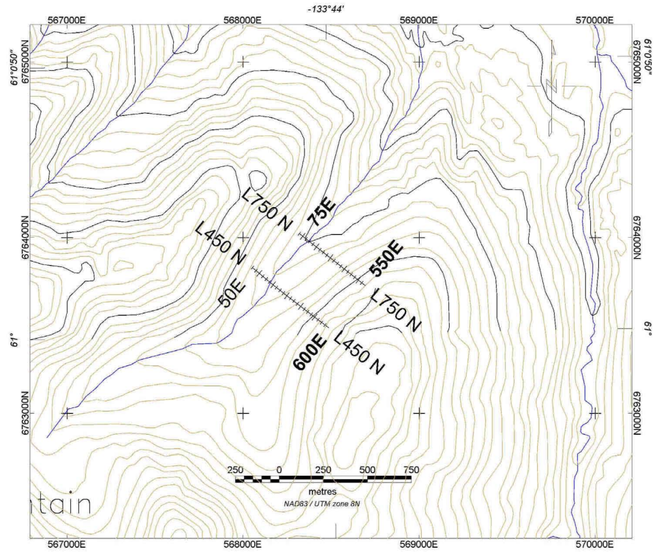
TINTINA MINES LTD.

RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 2. 100 m coils - 3520 Hz

NTS: 105 C13 / 105 F 04 — District: Whitehorse
Datum: NAD83 — Projection: UTM Zone 8N
Date: 16 Dec 2005 — Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND
HORIZONTAL LOOP EM

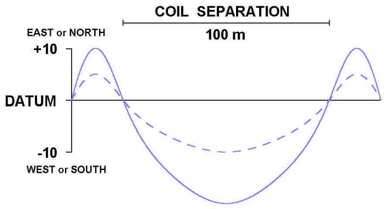
FREQUENCY : 7040 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 10%

IN PHASE :

QUADRATURE :



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QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

NAD83 / UTM zone 8N

TINTINA MINES LTD.

RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 3. 100 m coils - 7040 Hz

NTS: 105 C13 / 105 F 04
Datum: NAD83
Date: 16 Dec 2005

District: Whitehorse
Projection: UTM Zone 8N
Job: TML-05-01-YT

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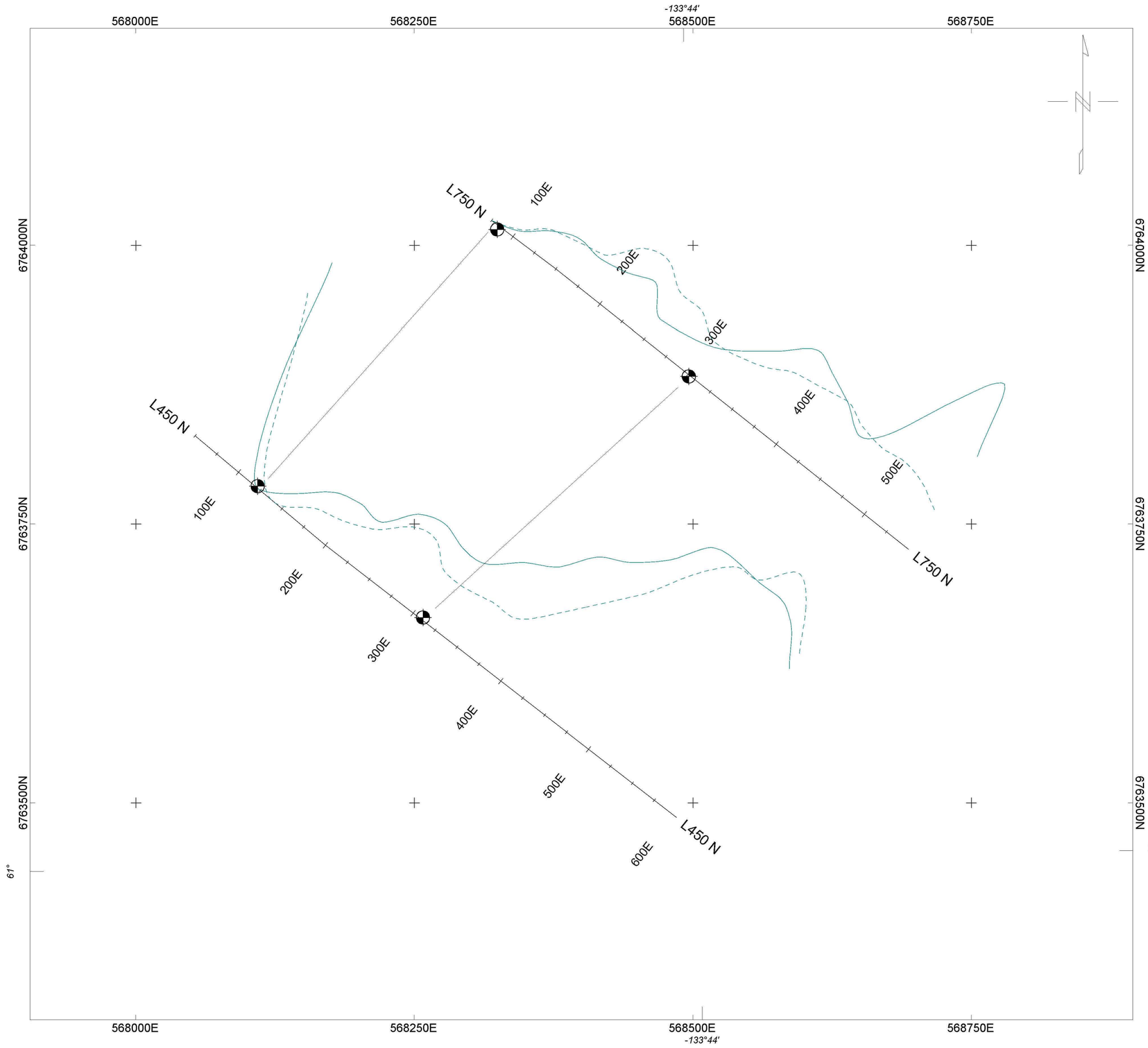
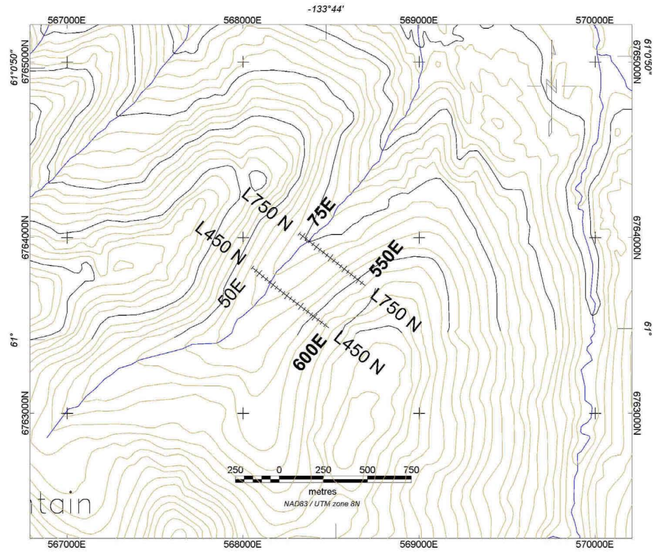




LEGEND
HORIZONTAL LOOP EM

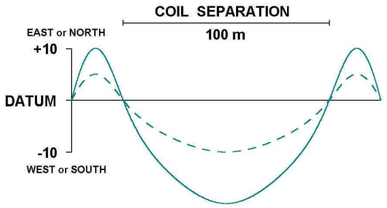
FREQUENCY : 14,080 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 10%

IN PHASE :

QUADRATURE :



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QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

NAD83 / UTM zone 8N

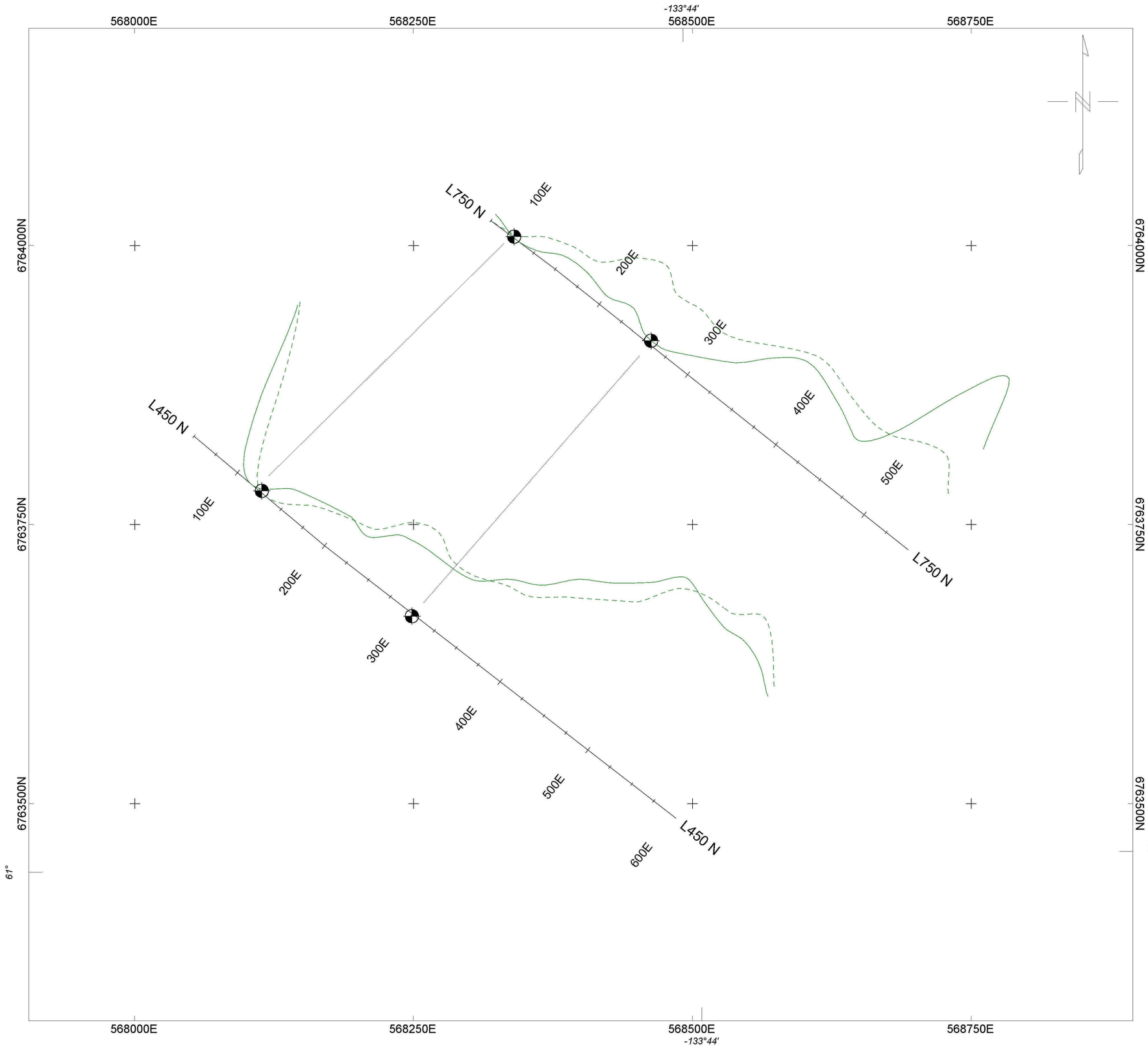
TINTINA MINES LTD.

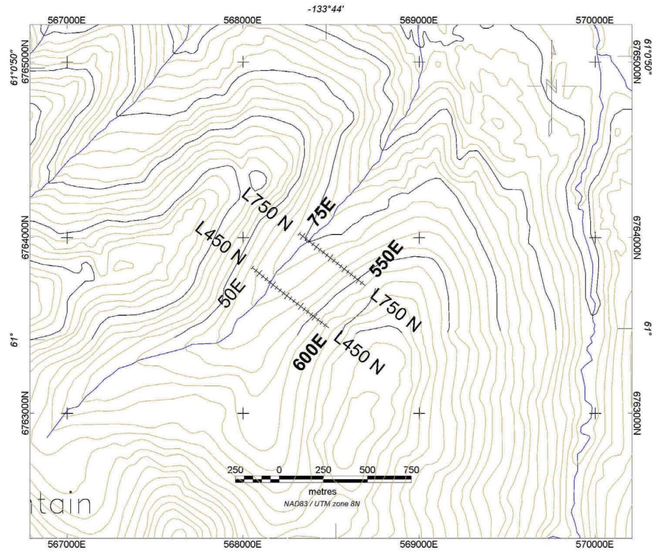
RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 4. 100 m coils - 14,080 Hz

NTS: 105 C13 / 105 F 04
Datum: NAD83
Date: 16 Dec 2005

District: Whitehorse
Projection: UTM Zone 8N
Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND
HORIZONTAL LOOP EM

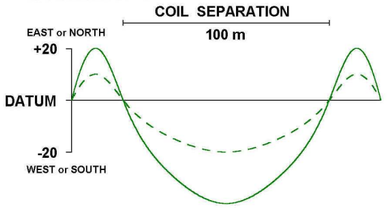
FREQUENCY : 28,160 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 20%

IN PHASE :

QUADRATURE :



IN-PHASE DATUM : 0%

QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

NAD83 / UTM zone 8N

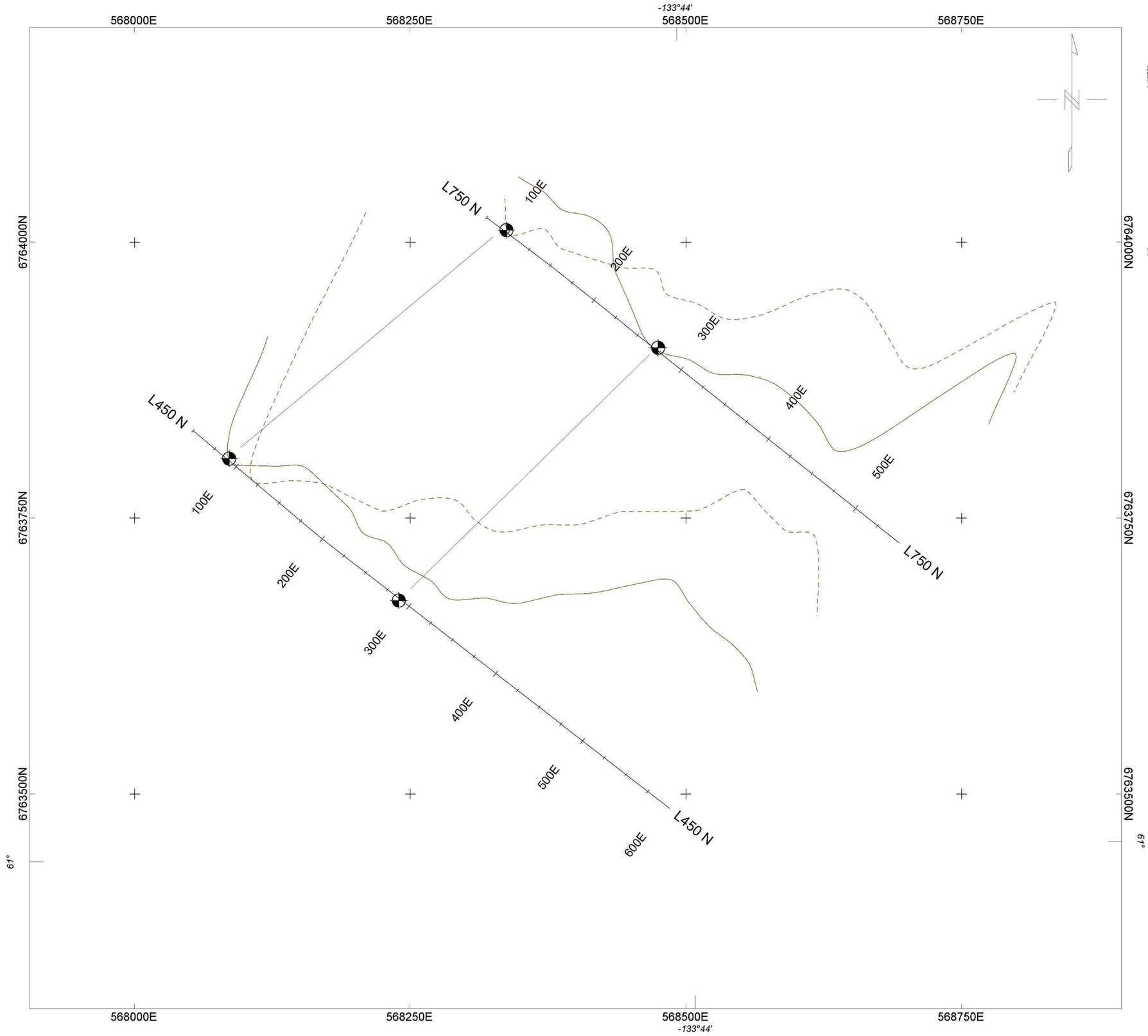
TINTINA MINES LTD.

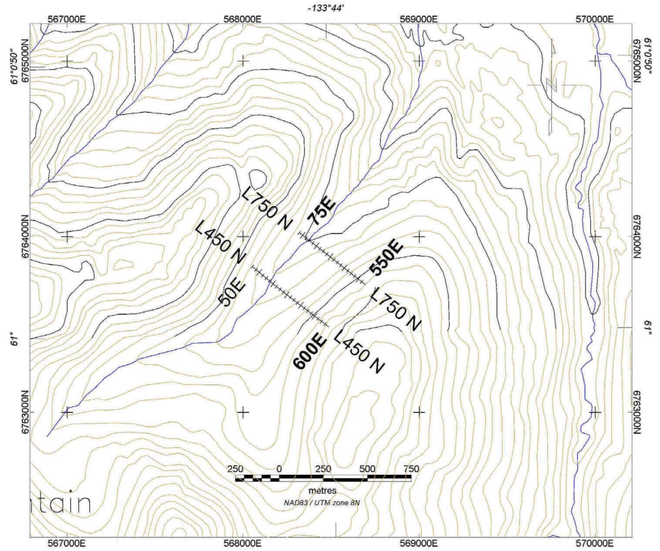
RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 5. 100 m coils - 28,160 Hz

NTS: 105 C13 / 105 F 04
Datum: NAD83
Date: 16 Dec 2005

District: Whitehorse
Projection: UTM Zone 8N
Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND
HORIZONTAL LOOP EM

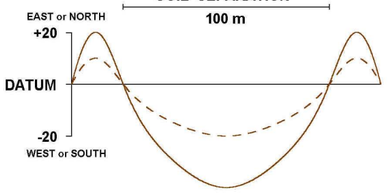
FREQUENCY : 56,320 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 20%

IN PHASE :

QUADRATURE :



IN-PHASE DATUM : 0%

QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

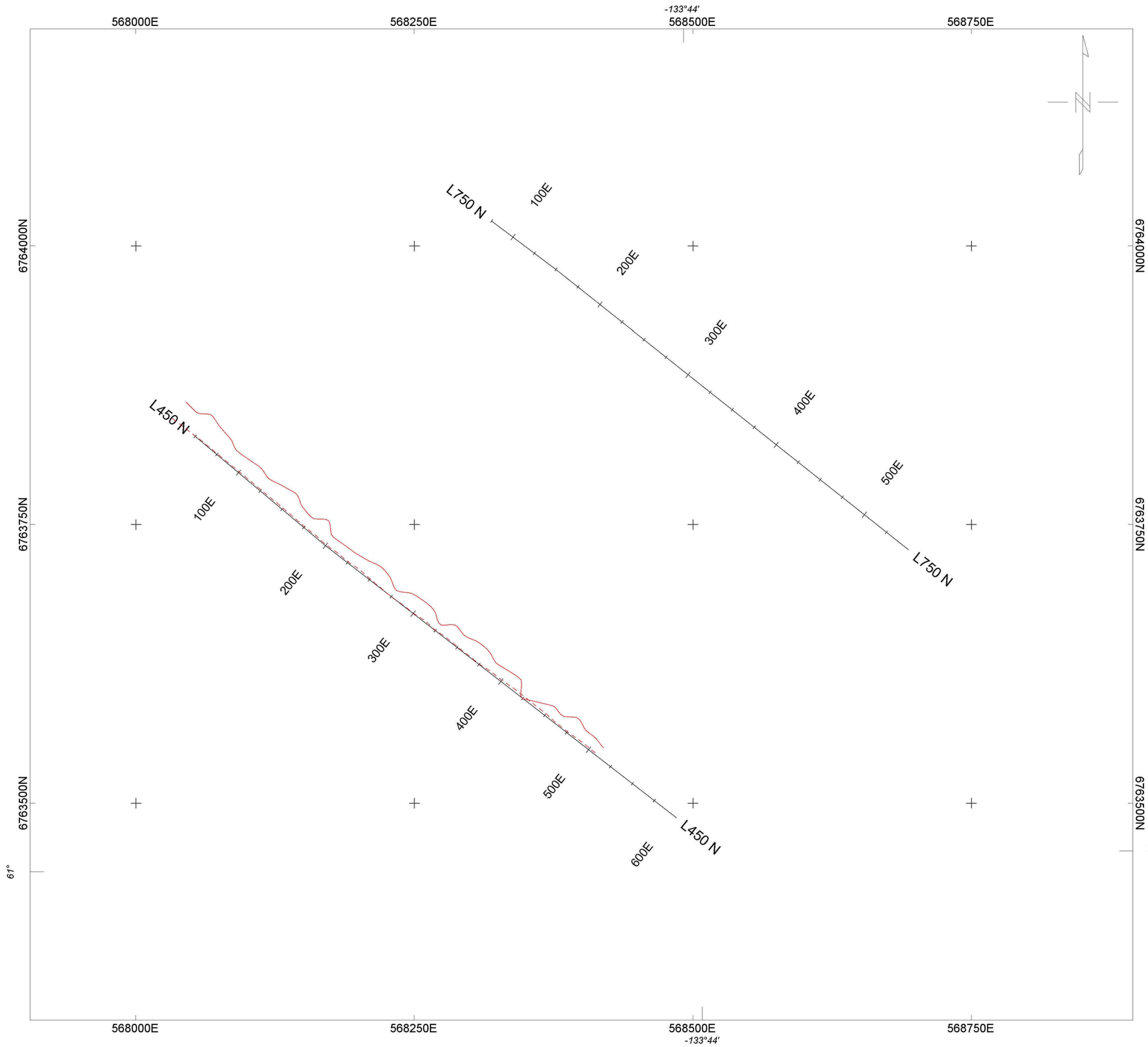
NAD83 / UTM zone 8N

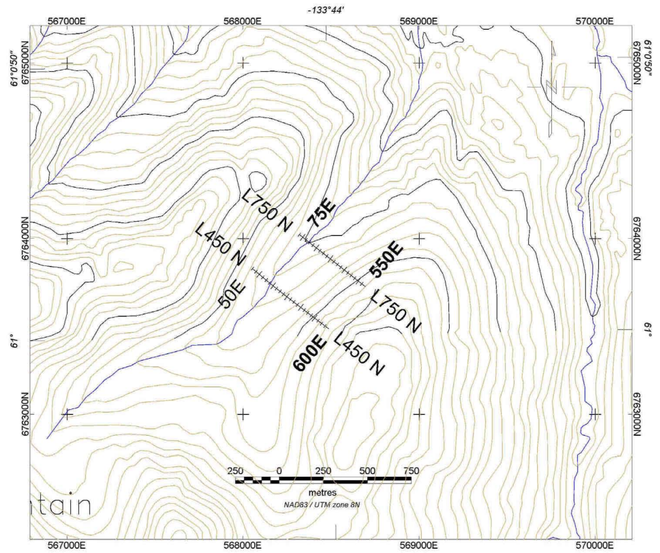
TINTINA MINES LTD.

RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 6. 100 m coils - 56,320 Hz

NTS: 105 C13 / 105 F 04 — District: Whitehorse
Datum: NAD83 — Projection: UTM Zone 8N
Date: 16 Dec 2005 — Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND
HORIZONTAL LOOP EM

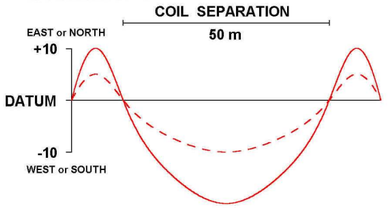
FREQUENCY : 220 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 10%

IN PHASE :

QUADRATURE :



IN-PHASE DATUM : 0%

QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

NAD83 / UTM zone 8N

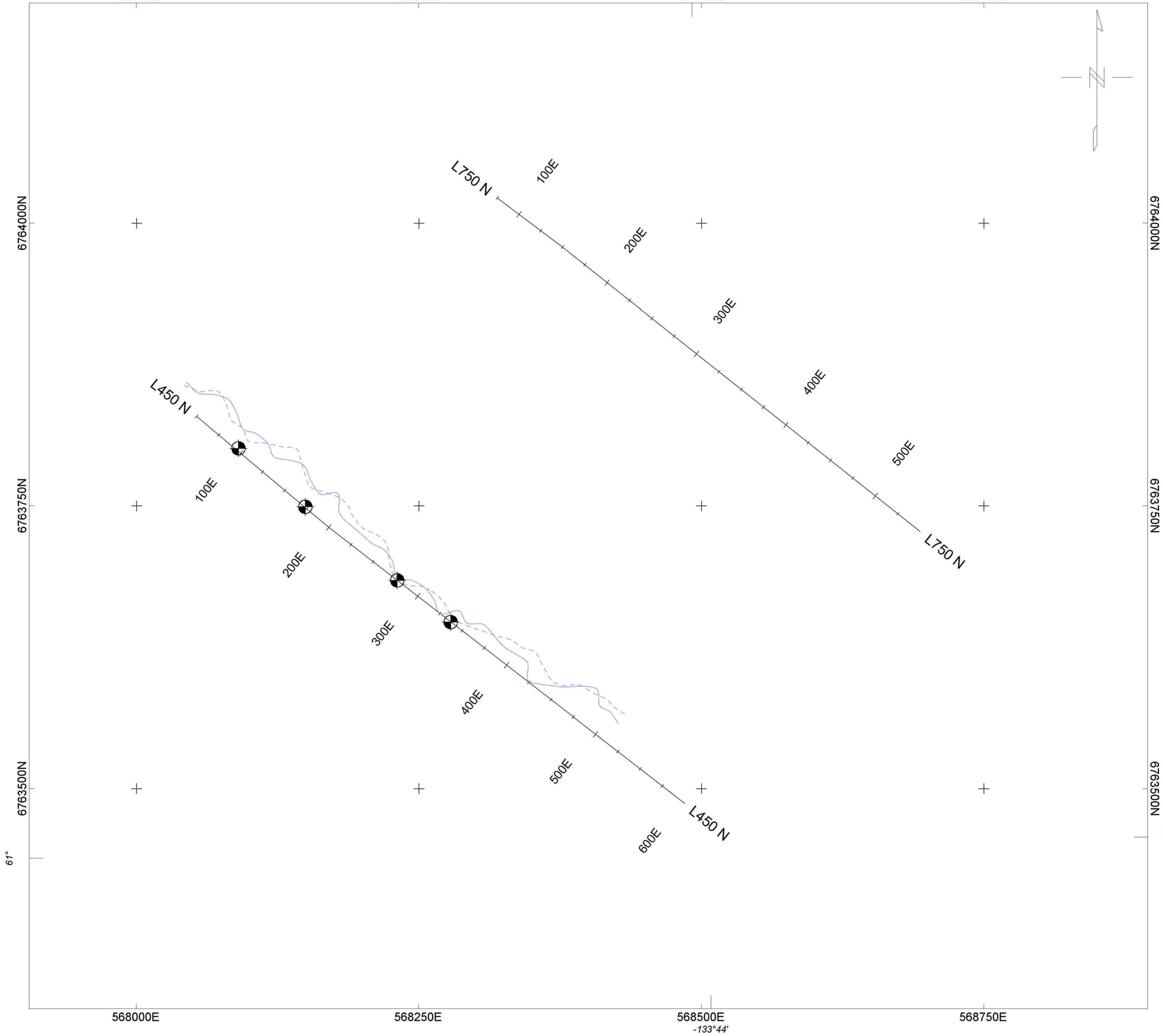
TINTINA MINES LTD.

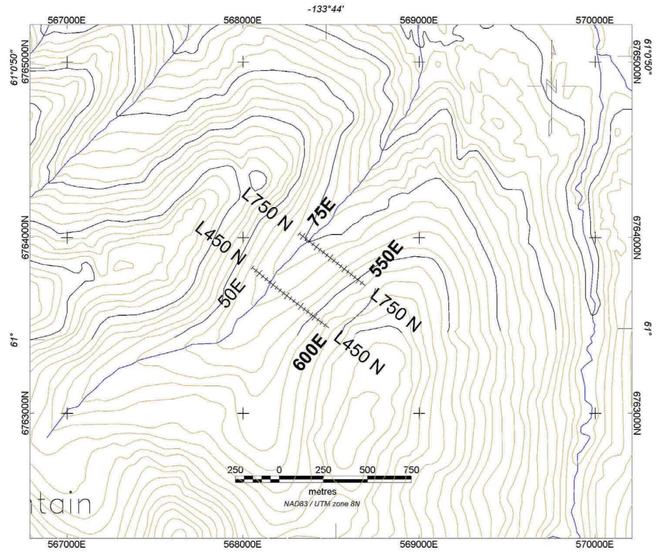
RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 7. 50 m coils - 220 Hz

NTS: 105 C13 / 105 F 04
Datum: NAD83
Date: 16 Dec 2005

District: Whitehorse
Projection: UTM Zone 8N
Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND
HORIZONTAL LOOP EM

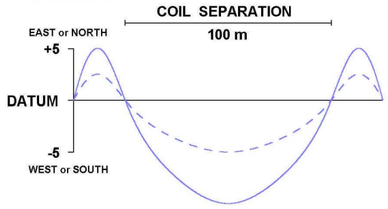
FREQUENCY : 7040 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 5%

IN PHASE :

QUADRATURE :



IN-PHASE DATUM : 0%

QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

NAD83 / UTM zone 8N

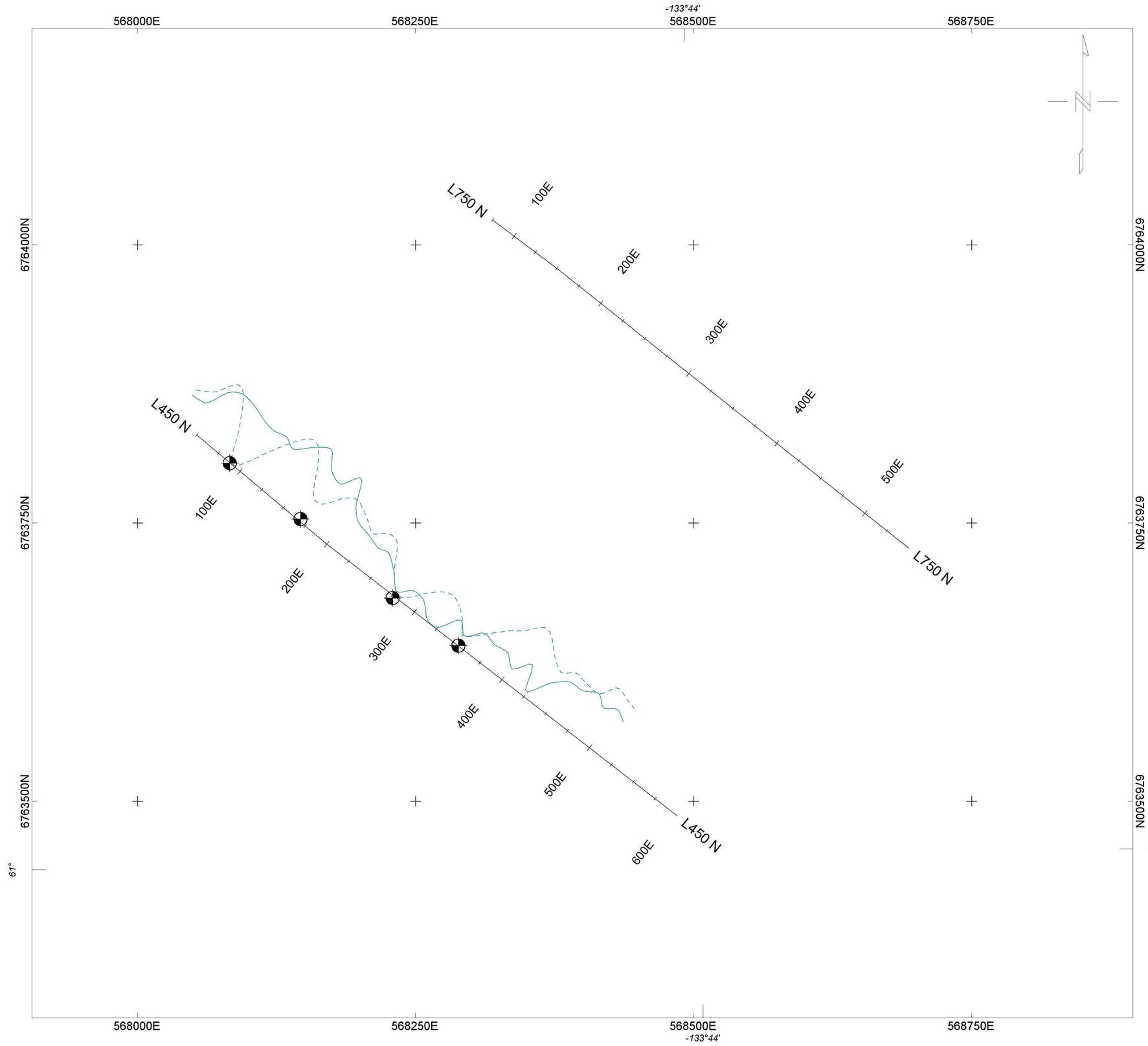
TINTINA MINES LTD.

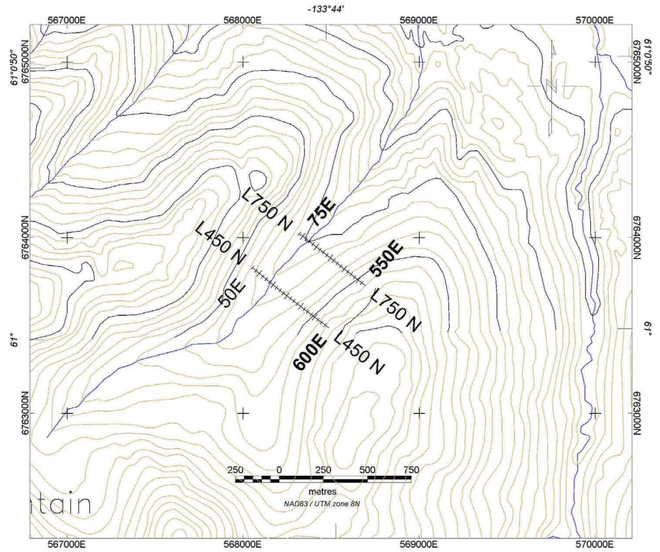
RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 8. 50 m coils - 7040 Hz

NTS: 105 C13 / 105 F 04
Datum: NAD83
Date: 16 Dec 2005

District: Whitehorse
Projection: UTM Zone 8N
Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND
HORIZONTAL LOOP EM

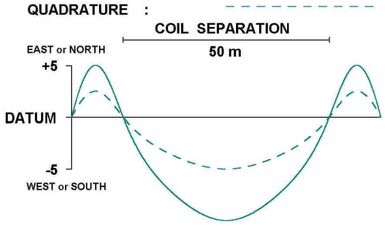
FREQUENCY : 14,080 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 5%

IN PHASE :

QUADRATURE :



IN-PHASE DATUM : 0%

QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

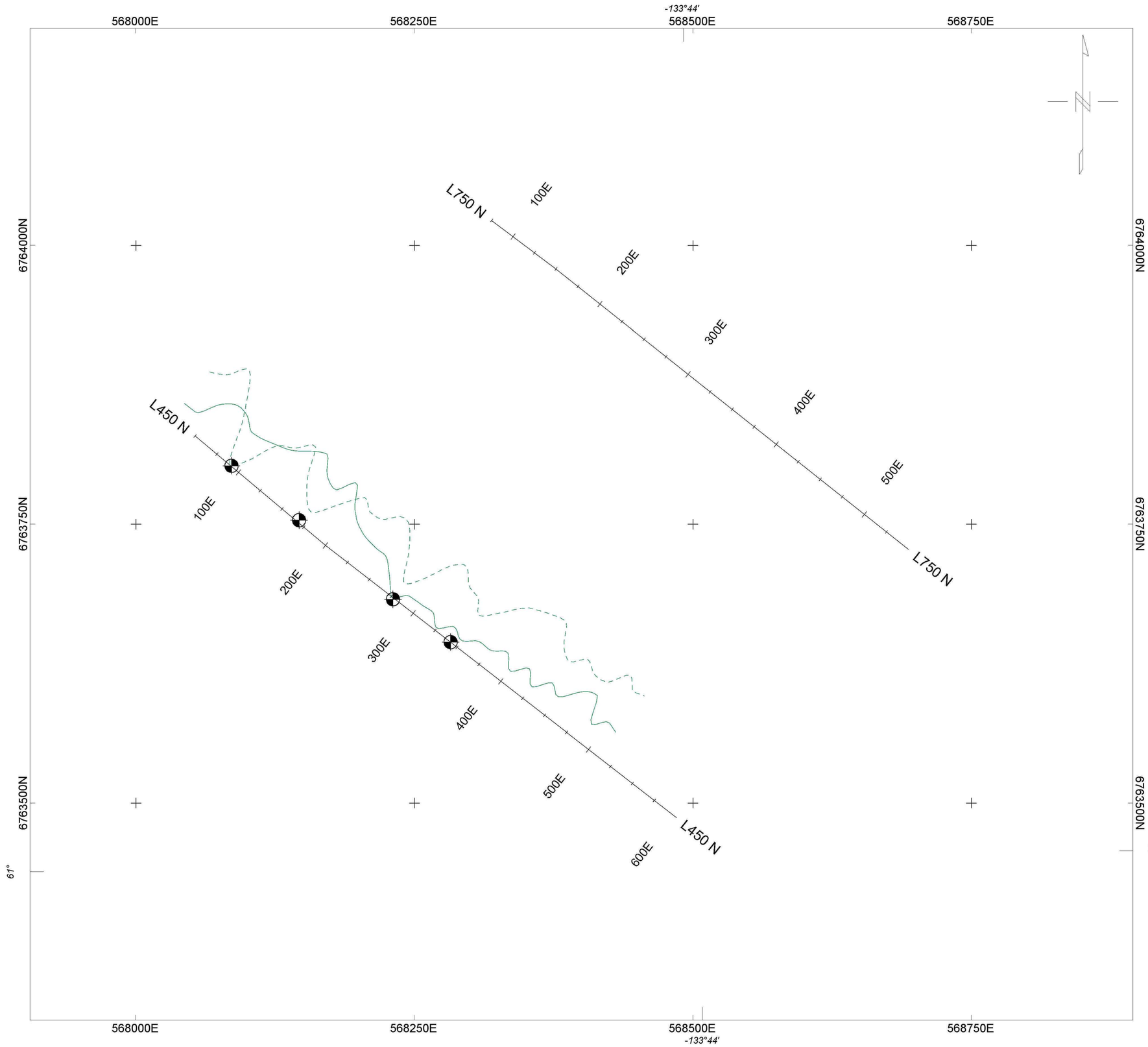
NAD83 / UTM zone 8N

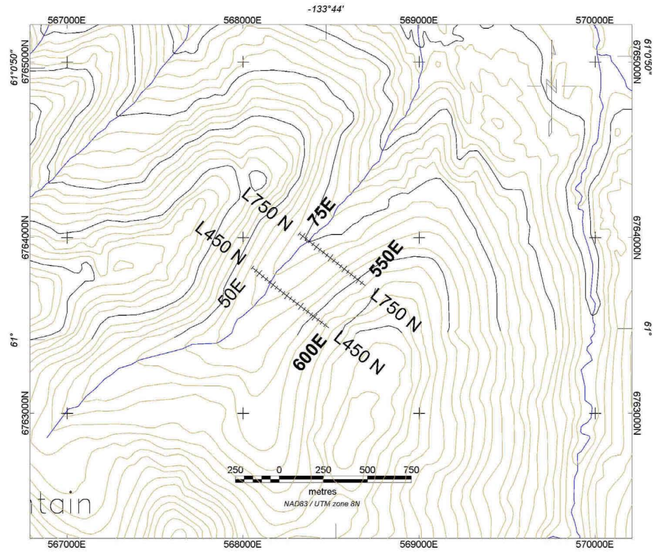
TINTINA MINES LTD.

RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 9. 50 m coils - 14,080 Hz

NTS: 105 C13 / 105 F 04 — District: Whitehorse
Datum: NAD83 — Projection: UTM Zone 8N
Date: 16 Dec 2005 — Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.





LEGEND
HORIZONTAL LOOP EM

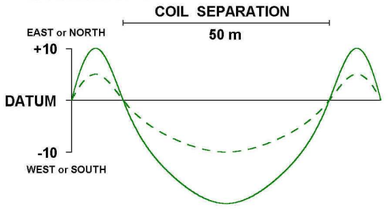
FREQUENCY : 28,160 Hz

INSTRUMENT : APEX PARAMETRICS MAX-MIN I-10

PROFILE SCALE : 1 cm = 10%

IN PHASE :

QUADRATURE :



IN-PHASE DATUM : 0%

QUADRATURE DATUM : 0%

DATA FILE : Red HLEM - 100.gdb

GEOMETRIC CORRECTION: SLOPE CHAIN / MMCFIX

STATION SEPARATION : 25 m

LINE-KM SURVEYED THIS SHEET : 1.25 line-km

Scale 1:3000

50 0 50 100 150 200

metres

NAD83 / UTM zone 8N

TINTINA MINES LTD.

RED MOUNTAIN PROJECT
HLEM SURVEY
Figure 10. 50 m coils - 28,160 Hz

NTS: 105 C13 / 105 F 04
Datum: NAD83
Date: 16 Dec 2005

District: Whitehorse
Projection: UTM Zone 8N
Job: TML-05-01-YT

AURORA GEOSCIENCES LTD.

_14KIP	_14KQ	_220IP	_220Q	_28KIP	_28KQ	_7040IP	_7040Q	Station	X	Y
7.85	10.99			14.29	16.82	3.94	6.33	25	568033	6763845
8.07	12.25	1.87	0.28	14.4	19.04	3.77	6.94	37.5	568043	6763837
11.86	15.4	4.04	0.32	20.8	24.53	5.11	8.71	50	568053	6763829
12.74	14.22	2.84	0.4	23.79	19.23	5.87	8.12	62.5	568063	6763821
12.38	10.65	2.12	0.3	23.14	10.98	5.07	6.66	75	568073	6763813
11.68	5.99	0.43	0.25	20.13	-0.57	3.79	6.78	87.5	568083	6763805
11.41	7.33	0.89	0.36	20.94	3.21	4.59	5.94	100	568092	6763797
11.94	11.61	1.14	0.38	22.19	12.38	4.55	7.34	112.5	568102	6763789
11.29	15.25	0.41	0.5	24.07	15.32	3.66	8.55	125	568112	6763780
13.36	16.24	1.3	0.47	27.25	19.64	4.85	9.48	137.5	568122	6763772
14.9	14.08	2.18	0.58	29.83	11.34	5.56	8.14	150	568131	6763764
12.47	10.19	0.36	0.44	24.98	5.72	4.42	6.71	162.5	568141	6763756
11.72	9.97	-0.18	0.48	23.28	4.82	3.84	7.27	175	568151	6763747
14.39	12.85	2.23	0.54	28.76	11.56	5.61	8.06	187.5	568161	6763739
10.54	13.67	-0.55	0.5	22.85	17.31	3.49	8.21	200	568170	6763731
8.83	12.51	-0.55	0.48	19.28	14.91	3.06	7.15	212.5	568180	6763724
8.43	11.16	-0.41	0.39	17.7	15.37	3.05	6.79	225	568190	6763716
7.69	12.42	-0.08	0.42	16.95	19.34	2.79	7.16	237.5	568200	6763709
8.14	12.22	1.04	0.44	17.04	18.63	3.29	7.14	250	568209	6763701
6.56	8.89	0.49	0.34	13.25	12.93	2.86	5.16	262.5	568219	6763693
4.46	6.51	-1.51	0.25	8.75	4.99	1.26	3.91	275	568229	6763685
5.97	6.73	0.3	0.24	11.97	8.61	2.22	4.22	287.5	568239	6763678
5.78	9.42	0.87	0.28	12.18	17.16	2.52	5.53	300	568249	6763670
3.82	10.89	0.43	0.4	12.39	19.5	1.95	5.61	312.5	568259	6763663
3.83	10.91	-1.63	0.33	9.55	15.71	0.86	5.4	325	568268	6763655
6.75	9.41	0.84	0.42	12.87	14.48	2.93	4.27	337.5	568278	6763648
5.27	7.3	0.12	0.36	11	10.62	2.18	4.78	350	568288	6763640
7.52	9.53	1.14	0.36	14.1	15.5	3.6	5.51	362.5	568298	6763632
7.1	11.83	0.91	0.42	14.17	20.62	3.24	6.27	375	568308	6763624
7.29	13.38	-0.69	0.52	16.59	22.64	2.74	7.05	387.5	568318	6763617
5.74	15.72	-0.15	0.56	12.7	24.19	3.02	7.22	400	568328	6763609
8.04	14.97	-0.18	0.64	16.64	24.66	3.02	7.78	412.5	568338	6763602
4.38	13.22	-4.11	0.86	13.02	18.83	0.92	7.11	425	568347	6763594
7.65	11.93	-2.47	0.59	17.43	16.02	1.94	6.14	437.5	568357	6763587
9.51	13.24	-0.47	0.65	15.48	19.97	3.22	6.42	450	568367	6763579
9.61	12.96	-0.95	0.43	20.85	17.66	5.05	8.16	462.5	568377	6763571
10.82	12.8	1.41	0.46	23.01	18.26	6.32	8.42	475	568387	6763563
9.48	15.35	-0.22	0.52	14.92	23.94	4.44	8.76	487.5	568397	6763556
10.68	14.86	-0.03	0.73	18.77	20.95	4.8	8.7	500	568406	6763548
9.46	14.26	-1.12	0.63	17.39	21.97	4.13	8.75	512.5	568416	6763541

_14080_ip	_14080_q	_220_ip	_220_q	_28160_ip	_28160_q	_3520_ip	_3520Q	_56320_ip	_56320_q	_7040_ip	_7040_q	ELEV	LINE	Stn	StnLbl	UTME_NAD83	UTMN_NAD83	x
46.07	84.71	2.92	27.05	43.25	118.21			-0.18	117.96	33.66	50.83	-28.8	450	50		568053	6763829.25	50
12.93	66.62	2.06	19.65	-13.66	84.59			-57.15	37.89	18.88	40.2	-36.3	450	75		568072.5	6763812.875	75
-9.93	46.3	2.15	9.15	-50.68	41.7			-71.33	-28.34	7.3	28.95	-36.3	450	100	100E	568092	6763796.5	100
-19.73	32.63	2.11	6.56	-54.79	16.75	6.17	17.82	-58.12	-48.95	1.25	23.57	-38.8	450	125		568111.5	6763780.125	125
-14.13	31.3	1.64	8.59	-41.94	20.26	5.39	17.96	-45.7	-32.9	1.64	22.09	-43.8	450	150		568131	6763763.75	150
-6.51	37.24	2.24	8.65	-37.21	31.69	8	18.37	-46.59	-22.73	6.38	23.57	-47.5	450	175		568150.5	6763747.375	175
-3.6	39.59	1.99	8.74	-33.33	37.8	9.62	18.55	-47.57	-18.85	8.32	24.46	-49	450	200	200E	568170	6763731	200
-4.37	43.04	2.69	7.93	-36.43	41.94	10.67	19.37	-54.5	-14.97	9.66	26.67	-47.8	450	225		568189.6875	6763715.75	225
4.94	50.46	2.66	9.17	-23.05	59.85	14.17	22.19	-50.4	6.77	14.52	30.33	-41.5	450	250		568209.375	6763700.5	250
7.01	52.05	2.61	11.64	-20.56	64.01	14.19	24.47	-54.79	18.3	13.64	31.44	-37.8	450	275		568229.0625	6763685.25	275
4.56	45.96	2.35	10.39	-20.36	55.76	11.99	22.26	-52.24	15.61	11.74	28.95	-33.5	450	300	300E	568248.75	6763670	300
5.36	45.98	2.61	12	-17.97	57.25	11.73	22.13	-54.07	20.18	11.18	28.68	-27.8	450	325		568268.4375	6763654.75	325
12.45	47.57	2.02	13.48	-4.31	63.91	12.71	23.7	-40.32	38.71	14	29.73	-22	450	350		568288.125	6763639.5	350
17.19	47.97	1.64	14.1	4.25	67.92	13.19	24.31	-31.49	51.98	15.24	29.97	-17.5	450	375		568307.8125	6763624.25	375
27.53	55.98	2.22	19.38	21.7	80.68	15.56	29.69	-11.82	75.02	19.65	35.73	-10.8	450	400	400E	568327.5	6763609	400
31.96	66.05	2.61	26.93	31.74	91.78	17.33	38.56	2.82	87.92	22.26	44.75	-3.3	450	425		568347.1875	6763593.75	425
39.16	76.21	3.59	31.39	45.03	102.96	20.35	46.33	22.49	101.37	26.19	53.48	8	450	450		568366.875	6763578.5	450
50.54	90.17	3.69	36.64	61.02	126.28	25.36	53.28	37.53	130.41	33.49	61.69	19.3	450	475		568386.5625	6763563.25	475
51.73	100.05	3.27	40.86	55.88	132.48	28.05	57.77	32.45	127.42	36.15	68.51	30	450	500	500E	568406.25	6763548	500
50.89	101.47	3.54	37.84	51.42	133.34	29.56	57.58	28.97	125.44	36.67	68.69	40.8	450	525		568425.9375	6763532.75	525
50.95	110.6	5.36	39.14	52.06	143.41	32.89	61.71	28.98	133.68	38.78	74.89	54.5	450	550		568445.625	6763517.5	550
46.19	103.43	3.6	35.13	45.91	130.82	31.81	58.2	26.02	116.43	36.66	71.87	65.8	450	575		568465.3125	6763502.25	575
34.97	89.74	3.51	28.68	33.5	111.88	28.02	50.66	14.75	94.3	29.46	61.49	84.5	450	600	600E	568485	6763487	600
-4.9	27.49	-0.01	11.21	-31.29	27.94	3.32	14.52	-48.5	-13.55	2.8	17.02	-125	750	75		568319.25	6764022.5	75
-2.67	30.22	-0.39	8.65	-35.66	29.55	5.51	11.99	-46.54	-30.23	5.03	15.84	-130	750	100	100E	568338.5	6764008	100
3.41	36.12	-0.92	7.26	-34.04	39.99	7.8	9.85	-48.51	-14.76	8.49	15.17	-133.8	750	125		568357.75	6763993.5	125
6.57	37.93	-0.03	8.05	-26.34	45.06	7.92	10.08	-41.71	-17.82	10.79	15.88	-137.5	750	150		568377	6763979	150
5.79	39.65	0.89	9.56	-25.8	47.18	9.91	12.29	-42.63	-11.66	11.61	18.43	-133.5	750	175		568396.7778	6763963.278	175
7.3	48.63	-1.09	13.48	-29.39	63.07	10.16	17.43	-58.45	-4.81	12.96	23.95	-128.5	750	200	200E	568416.5556	6763947.556	200
10.55	50.35	0.51	16.63	-25.1	71.04	10.31	19.86	-67.26	6.83	12.92	26.3	-122	750	225		568436.3333	6763931.833	225
2.76	45.13	-1.87	16.29	-33.29	61.25	7.2	20.85	-76.48	-0.02	8.05	25.94	-114.5	750	250		568456.1111	6763916.111	250
3.77	44.8	0.3	16.22	-31.59	63.26	7.51	20.93	-79.16	6.94	8.27	25.8	-107	750	275		568475.8889	6763900.389	275
5.78	39.98	-0.95	16.08	-22.96	60.58	6.79	18.87	-71.93	9.55	8.89	22.96	-100.3	750	300	300E	568495.6667	6763884.667	300
10.62	40.97	-0.03	17.82	-13.58	66.26	8.36	19.36	-69.18	24.58	9.91	23.8	-93.5	750	325		568515.4444	6763868.944	325
17.24	43.48	-0.39	19.86	3.3	75.74	8.93	21.72	-57.18	54.03	12.78	25.51	-87.2	750	350		568535.2222	6763853.222	350
24.58	47.76	-0.59	21.42	14.38	83.7	10.36	23.71	-51.08	70.4	15.4	26.95	-79.7	750	375		568555	6763837.5	375
22.21	49.25	0.87	24.87	11.88	84.12	9.61	26.32	-50.9	69.56	14.82	29.46	-70.8	750	400	400E	568574.7778	6763821.778	400
18.57	50.81	-1.41	25.77	5.33	78.73	8.42	28.28	-53.49	63.65	12.15	31.38	-61.8	750	425		568594.5556	6763806.056	425
12.84	47.75	-0.68	26.84	-3.04	74.85	7.22	28.51	-59.84	56.82	10.65	31.04	-52.5	750	450		568614.3333	6763790.333	450
19.58	46.36	-0.64	25.47	12.81	75.32	8.6	26.91	-39.06	67.63	12.15	29.34	-42.5	750	475		568634.1111	6763774.611	475
37.95	47.31	0.12	27.48	55	83.19	11.72	27.49	11.5	106.93	19.21	30.43	-35.5	750	500	500E	568653.8889	6763758.889	500
51.73	45.39	-0.32	22.07	82.09	86.39	15.33	23.62	53.36	141.78	24.78	26.72	-26.8	750	525		568673.6667	6763743.167	525
27.43	41.12	0.08	23.46	34.94	67.6	9.54	24.8	6.01	78.37	15.15	26.91	-16.5	750	550		568693.4444	6763727.444	550

APPENDICES

Appendix c – Christian Thomas Archaeological Report

Archaeological Inventory and Impact Assessment for the Red Mountain Property, Southern Yukon

Access Road Corridor, Proposed Portal and Base Camp Localities

November 2006
Permit # 05-11ASR

Prepared by

Christian D. Thomas

Of

Thomas Heritage Consulting
Whitehorse, Yukon

For

Tintina Mines Limited

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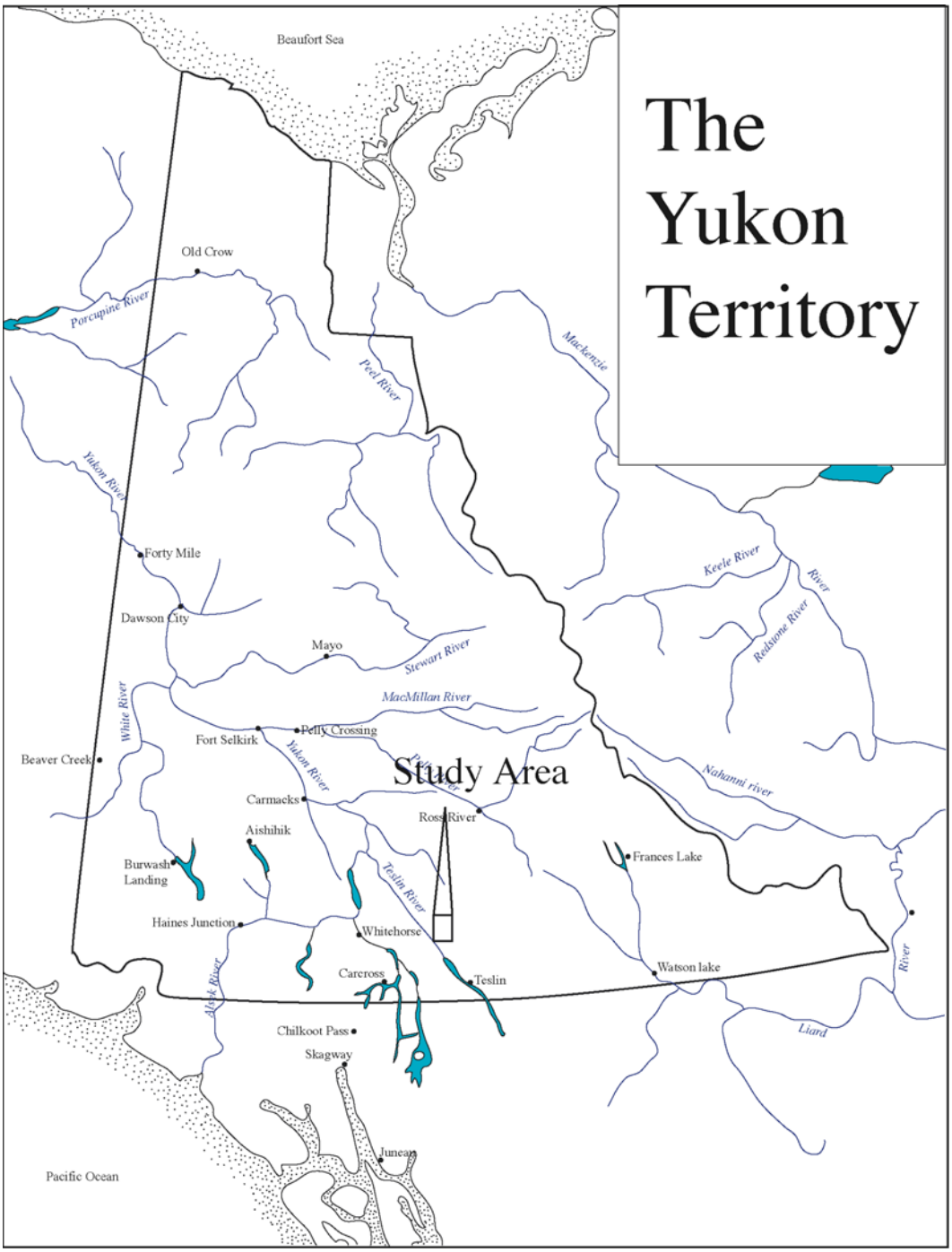

Figure 1: Map of the Yukon highlighting the study area.

Introduction

The following report is the result of a heritage sites inventory and impact assessment for the areas within the Red Mountain Claim area including the access road corridor as well as a proposed portal and base camp location. The study area is located in the Big

Salmon/Saw Tooth Mountain ranges of the southern Yukon (Figure 1). The mine claim area is centred on Slate Mountain which lies to the north of the Rose/Swift Lake chain and to the south of the Boswell River. The fieldwork for this phase of the project was completed during three days from 7 to 10 September 2005. Further overview analysis was completed during the fall of 2006 when new access road alignments were proposed.

Objectives

The objective of the fieldwork was to visit sites identified in a heritage sites overview assessment (Thomas 2005) and complete a program of shovel tests and surface level surveys at moderate to archaeological potential localities at localities that may be impacted by future developments. The specific development areas the consultant focused on were the access road corridor, the portal location and the proposed base camp location. In this instance, heritage resources are defined as historic or archaeological sites and gravesites or objects that have been abandoned for more than 45 years and are protected by the *Yukon Historic Resources Act* and annexed *Archaeological Sites Regulation*. Furthermore, the survey intended to identify First Nation traditional use sites that may be protected by the *Umbrella Final Agreement* and the *Teslin Tlingit Final Agreement*. The intended result of this survey is to insure that any heritage resources located on the property are properly managed in light of the proposed development. Recommendations regarding the results of the survey will be presented at the end of this report.

Background

Project Location

The study area is located to the west of the South Canol Road in the area spanning the Big Salmon/Saw Tooth Mountain ranges of the southern Yukon (Figure 2) and is depicted on NTS map sheets 105 C/13, 105 C/14 and 105 F/4. The mine claim area is centred on Red Mountain which lies to the north of the Rose/Swift Lake chain and to the south of the Boswell River. The access road right of way is located within the Sydney Creek and Swift River drainage systems, on the south and east side of the Sawtooth Range, then enters the central claim area to the west of Red Mountain Creek and joins a network of local mine roads that circle Slate Mountain and access the Boswell River drainage system to the north.

Climate and Environment

The study area is located in the Pelly Mountains Ecoregion. This ecoregion encompasses the Pelly and northern Cassiar Mountains spanning the British Columbia-Yukon border. The mean annual temperature for the area is approximately -3°C with a summer mean of 10.5°C and a winter mean of -17.5°C. Mean annual precipitation is 500-1000 mm, varying with elevation. Boreal forests of white spruce, black spruce, lodgepole pine and aspen cover the lower-elevation valley bottoms. Much of the ecoregion lies above the tree line and is characterized by alpine tundra communities of lichens, dwarf ericaceous shrubs, birch, and willows. Grasses, sedges, cotton grass, and some mosses occupy wet sites. Open-growing black and white spruce, and alpine fir are prevalent in the subalpine region. Some aspen and scrub birch occur in valleys and on lower, warmer slopes of the

subalpine sections. Lodgepole pine is common following fires. The Pelly and Cassiar Mountains are of moderately high relief, ranging from generally over 1500 m asl to the highest peak at 2404 m asl. Relief is greater in the Pelly Mountains than in the Cassiar Mountains. Permafrost is sporadically distributed. Representative wildlife includes moose, wolverine, snowshoe hare, black and grizzly bear, Stone's and Dall's sheep, ptarmigan, ground squirrel, and caribou (Yukon Ecoregions Working Group 2004).

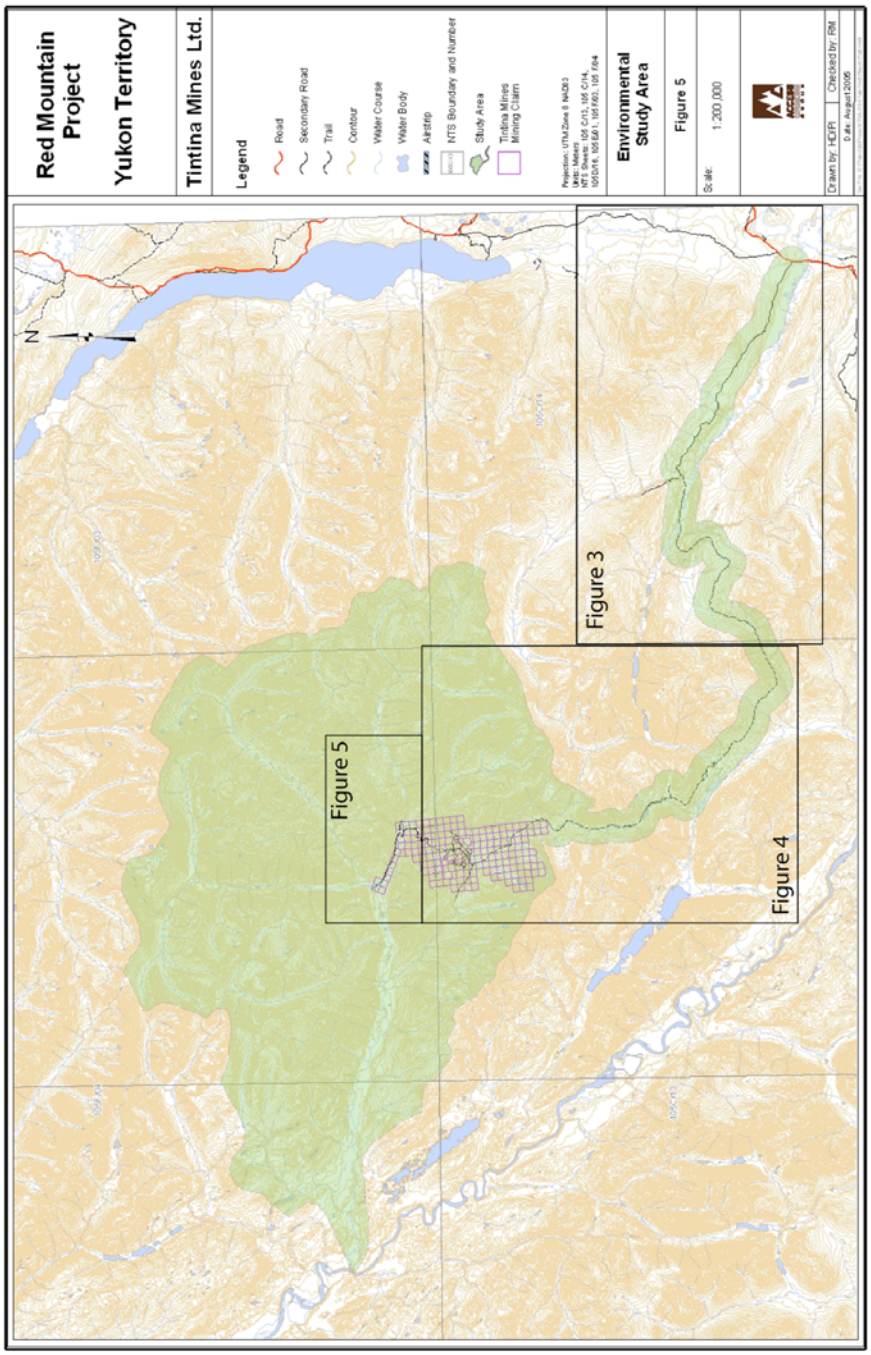

Figure 2: Map of the development area. Claim area is highlighted.

Historic Context

Archaeological phases of the southern Yukon that apply to the study area are as follows. The earliest occupation of the region, which followed the retreat of the Cordilleran ice sheets at the end of the Wisconsin glacial event, is labeled by archaeologists as the Northern Cordilleran tradition (Clark 1983; Hare 1995). The Little Arm phase, dating from 7,000 to 5,000 years ago, is characterized by the appearance of microlithic technologies that diffused into the region from the interior of Alaska to the west (Clark and Gotthardt 1999; Workman 1978). During the Taye Lake phase, approximately 1,250 to 5,000 years BP, microblade technology becomes sparse if not absent in Yukon, being replaced by a technology characterized by notched projectile points and a diverse variety of scraping and carving tools (Workman 1978; Hare 1995). The most recent archaeological culture identified in the southern Yukon is the Aishihik phase (Workman 1978). This phase is thought to be a cultural development from the earlier Taye Lake phase (ibid.) though there are some differences in technology. The most notable technological advance made during the Aishihik phase was the introduction of the bow and arrow, which replaced throwing spears as the principal hunting implement (Hare, et al. 2004). All Aishihik phase sites are found stratigraphically above a layer of White River Volcanic Tephra that is dated to about 1,250 radiocarbon years BP (Clague, et al. 1995).

The indigenous inhabitants of the study area are the Inland Tlingit. They trace their ancestry to coastal Tlingit populations who migrated inland along the Taku River from Alaskan coast over the last three to five centuries. Many Inland Tlingit trace their lineage to the Juneau/Auk Bay area. Though strong social and economic ties were maintained with the coastal Tlingit, inland people adopted an interior lifestyle that involved some seasonal migrations between semi-permanent villages and traditional resource areas (McClellan 1975, 1987).

The traditional economy of the Inland Tlingit was dictated by seasonal cycles; during the mid to late summer, salmon was harvested in the Teslin River and smaller spawning streams. During the late summer early fall large game were in prime condition at which time people would organize major hunting expeditions in the mountains. With the onset of winter people would settle in semi-permanent village sites at good winter fishing lakes. Winter activities included lake fishing, hunting, trapping, and the production of goods for trade and exchange. Trading was an important element of the Tlingit social universe and people continued to either travel to the coast to trade fur harvests, or they would act as trade middlemen to the Athapaskan groups of the interior (McClellan *ibid.*).

Methods

The project survey methodology involved surveying, by helicopter, the entire access corridor route and completing subsurface shovel testing programs at any and all localities with moderate to high potential for the presence of historic or archaeological sites (Thomas 2005). A location with elevated potential was considered to be a site that is close to a water body (such as a lake, river, stream or wetland) and occupies an elevated hill or terrace or a well-drained and level habitation surface.

When testing a site the consultant first transected the locality on foot to search for surficial heritage resources. Sites would then be tested by excavating a series of subsurface 40 x 40 cm shovel tests in a 10-15 m grid pattern across the locality, or in this case, within the boundaries of the alignment right of way.

When sites were found their location was recorded using a hand held GPS. The site was then photographed, sketch mapped and artifacts were either collected or a description was recorded for the site.

In several instances sites, that were thought to have elevated potential based on opinions developed from the analysis of orthographic photos and topographic maps, were not field tested because in field observations of the locations resulted in the consultant rescinding the former opinion. The re-classification of location specific potential was proposed, in some cases, because the on the ground observations of the site led the consultant to believe that there was no potential for the presence of heritage sites. In other instances the actual development site was farther removed from the area of elevated potential than was originally thought and was therefore shown to not be in conflict with the area of elevated potential. Specific sites where potential was reassigned will be discussed in the results section of the report.

Plate 1: Excavating test units.

Results.

Project Scope and Development Sites

The heritage sites inventory and assessment for the Red Mountain property focused on four main development initiatives that will impact the land surface: 1) the upgrading and rerouting of the access road from the Canol Road to Slate Mountain, 2) the development of a mine camp at the base of Slate Mountain, 3) the development of a mill site and tailings site on the east face of Slate Mountain, and 4) the development of mine portal sites in the south eastern slope face of Slate Mountain.

Access Roads: The access road to the mine property will be upgraded largely using the existing alignment that is noted on figures 3, 4 and 5. Three realignments of the route will be implemented, the most significant of these is to the west of Twin Creeks where the road will be realigned to the north of the present route into the Flat Creek drainage and will rejoin the old route about 3 km to the west (see Figure 3; blue highlighted area north of are 4). On the east end the alignment begins at the approximate UTM point E0587000 N6748000 and rejoins the existing road at UTM point E0583800 N6746200[1]. Aerial observations made during the fall of 2006 led the consultant to classify the new route as having low potential for the presence of heritage resources. No ground testing was required.

Other alignment alterations include an improved grade decent into the Sydney Creek Valley east of the confluence of Irons Creek. The re-alignment crosses a terrace edge that has previously been classified as having low heritage site potential and will not pass within 100 m of Sydney Creek (see Figure 3; blue highlighted area adjacent to area 3). The last significant re-alignment is located to the west of the headwaters of Red Mountain Creek directly to the east of the present route highlighted on Figure 4 (blue highlight adjacent to area 12). In this case the route has been moved up slope to avoid crossing a minor creek flowing south into Swift River. The results of the heritage sites inventory of the road network will be described in the following section.

Mine Camp: The Mine camp is located approximately UTM point 08 V E0567482 N6761121[2] and is comprised of several semi-permanent wood frame structures on the north bank of a minor tributary of Slate Creek (Plate 2). The mine camp locality was inventoried and tested during the 2005 field season as part of the access corridor assessment. No historic or archaeological remains were discovered (see results for test section 14 and 16 in).

Mill Site / Tailings: The exact location of the mill site and the tailings dump has not been made specific but is expected to be developed on a high terrace on the eastern face of Slate Mountain previously described as having low heritage site potential (Plate 3).

[1] UTMs were aquired from NTS topographic maps. NAD 27 Canada.
[2] UTM aquired using a hand held GPS. NAD 83.

Plate 2: Red Mountain mine camp. South slope of Slate Mountain in background.

Plate 3: Drill platform on south face of Slate Mountain. This location is typical of potential portal sites.

Mine Portals: As drilling programs were not complete at the time of assessment the precise location of the mine portal has not been disclosed. However, they will be developed on the slope face of Slate Mountain. Due to the extreme slopes of the mountain it is highly unlikely that the portal will impact an area classified as having elevated heritage sites potential (Plate 3).

Heritage Sites Inventory

The localities depicted in Figures 3 through 5 were highlighted as being areas with elevated heritage potential and were subsequently checked for the presence of historic and archaeological sites (Thomas 2005). During the inventory no historic or archaeological sites were located in any areas that are to be developed under the current

development plan. The following notes describe the nature of the infield testing program and results of the inventory. The results are described by map sheet area.

Map Sheet 105C/14:

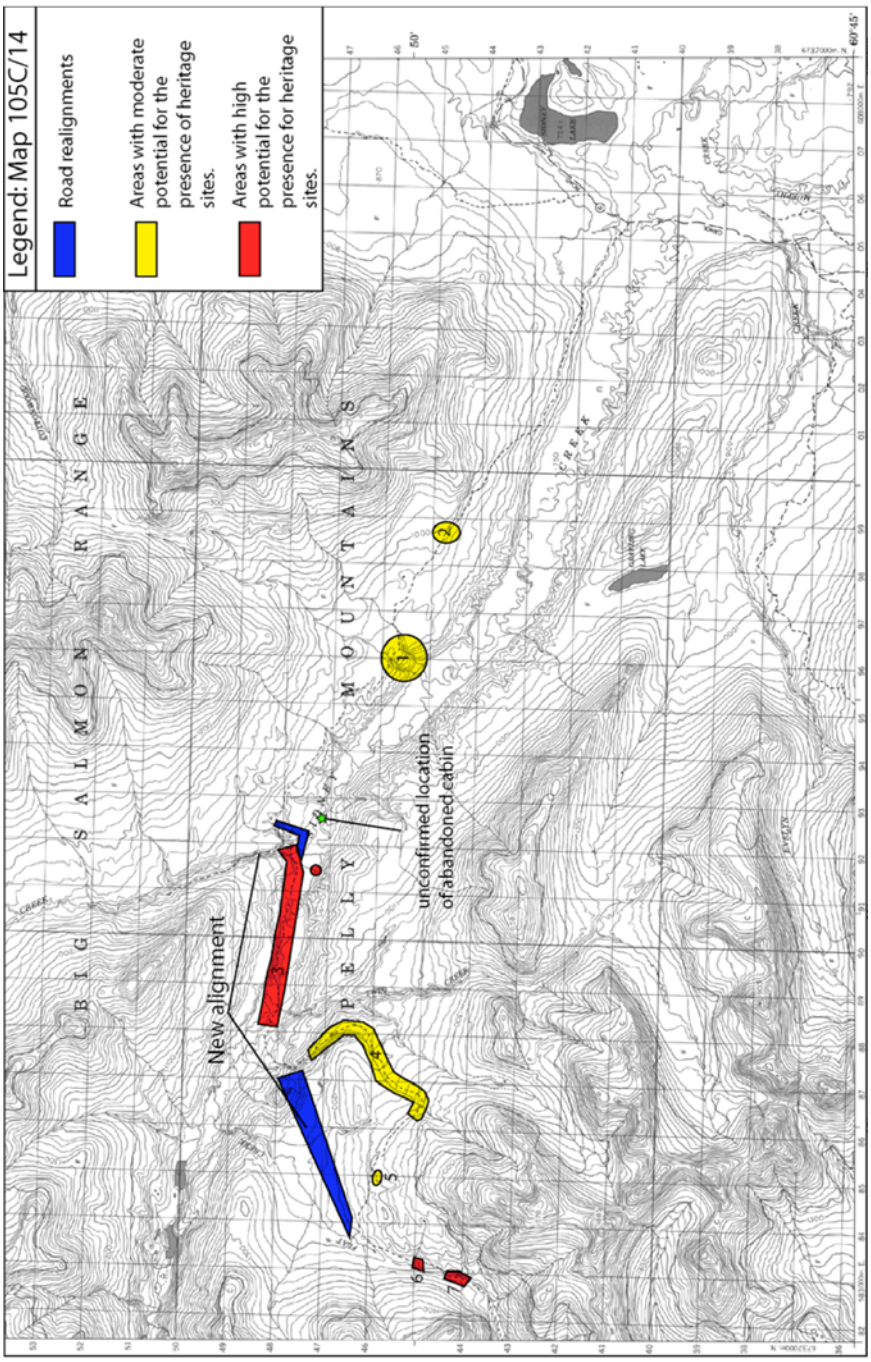

Figure 3: Map sheet 105C/14 showing highlighted areas with heritage potential.

Locality Notes for Map Sheet 105C/14:

1) The area was described as having elevated potential because the road passes close to the edge of a prominent terrace with a good lookout and crosses two streams at this point. During an aerial fly by of the site it was noted that the road was over 100 m from the terrace edge and was therefore not in conflict with the terrace edge. Furthermore, the terrace edge is much more highly elevated than was originally believed from ortho-photo work. As a result the terrace edge is considered to have no or little potential for site recovery. The road exposures at the stream crossing were tested and no archaeological materials were recovered.
2) The area was ascribed elevated potential due to the presence of a lone hill with a seemingly good view of the surrounding plateau. When this site was field checked it was shown to be a variation in the forest canopy rather than an elevated hill. Locality potential was reassigned to nil. No testing was required.
3) At this point the road comes down off of the hill slope on to the terrace edge and then down to valley bottom. There are multiple south facing terrace edge lookouts that have elevated potential for site presence. In the valley bottom there are multiple south facing portions of flood plain low terrace in close proximity to Sidney Creek. The confluence of Sydney and Iron creeks were extensively shovel tested, as were sites where the road crossed Sydney and Irons Creek. At the confluence 10 shovel tests were excavated and 45 more were completed along the north side of a low sand covered gravel terrace overlooking Sydney Creek. No artifacts or sites were discovered. The consultant should note that a local miner mentioned that there was an old partially collapsed cabin approximately one kilometer off the road to the south and east of a small gold mining operation. The site was not inventoried during this project because it was not within the project claims or impact areas.
4) A three km section of road that follows an elevated terrace overlooking the southeast side of south fork of Sidney Creek at its headwaters. The area was flown over in the helicopter and the steepness of the topography in this area precluded the previous assignment of heritage sites potential. For this reason the area was not tested.
5) A low hill to the south side of the road that has moderate potential for the presence of a lookout site. No testing at the site was completed because the locality was deemed to be outside the development zone.
6) The road crosses a small stream that flows into the valley from the east and is fed by a small pond/lake about one km up a valley leading into the mountains. The crossing was tested (5 shovel tests) and no historic remains were located.
7) A small pond/lake is present in the middle of the valley. The lake was transected by foot and no historic sites were observed. No shovel testing was completed in the area because the shores of the lake were considered to be too swampy to be habitable and therefore have no potential for site presence. Furthermore, there were no elevated landforms adjacent to the lake or the road corridor.
8) The road crosses a mountain stream, then passes along the north side of a pond/small lake roughly 1 km to the west of stream crossing. The stream crossing and surrounding terraces were shovel tested (n=23) and no sites were located.

Map Sheet 105C/13

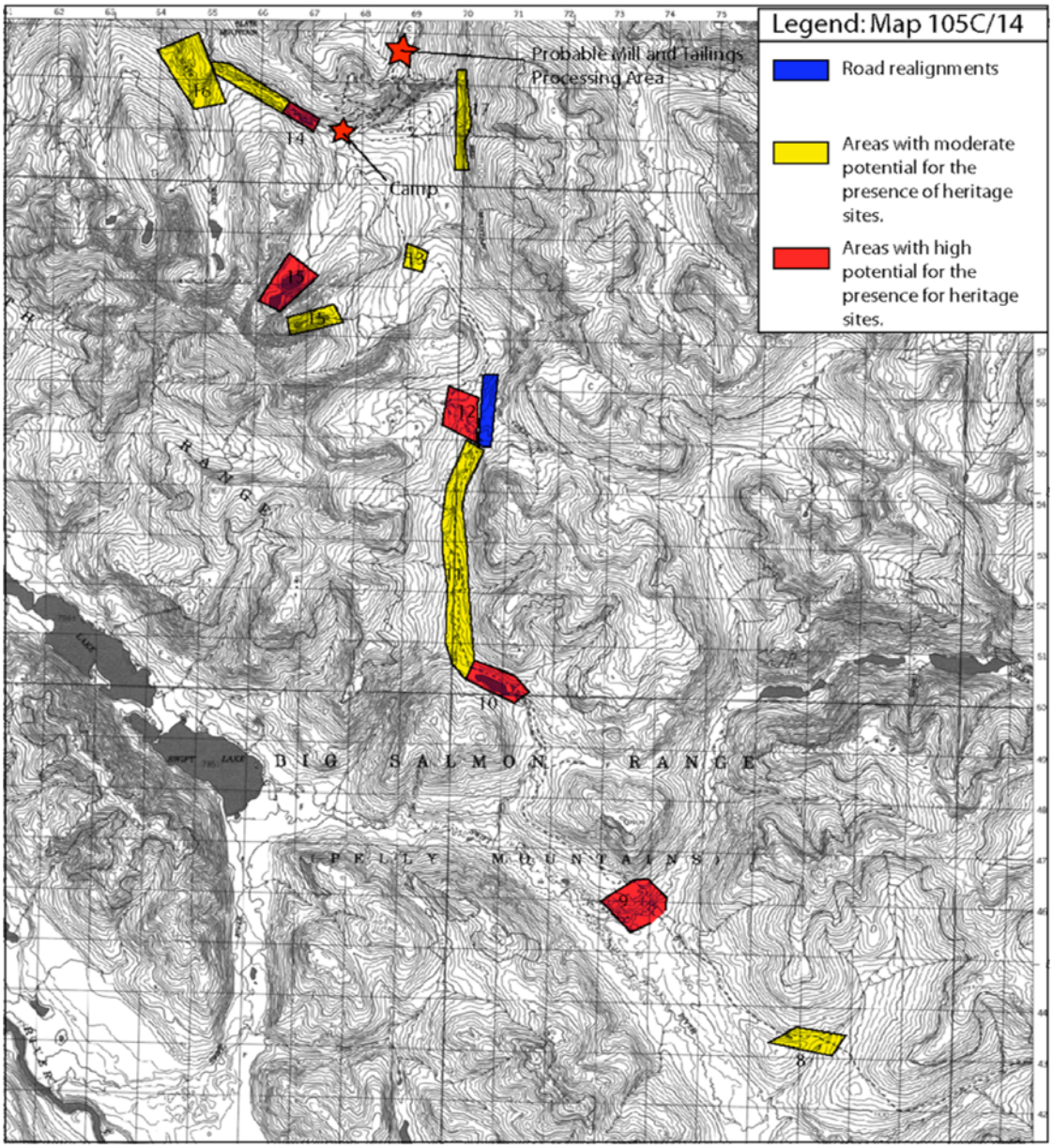

Figure 4: Map sheet 105C/13 showing highlighted areas with heritage potential.

Locality Notes for Map Sheet 105C/13:

9) The road crosses a stream with a prominent elevated hill/terrace that would be a preferable camp location. The stream crossing and surrounding terraces were inventoried (15 shovel tests) and no sites were located.

10) The road passes to the north of a significant lake. The area surrounding the lake was transected for historic sites and none were located. The north side of this lake was surveyed for sites but conditions in the area precluded subsurface testing. The foot survey of the area did not lead to the identification of historic era sites though

the consultant did observe a large area of cut stumps in a muskeg located at the east end of the lake. Most of the stumps were partially submerged by the water table. It is possible that the area was cleared in order to allow planes to land at the lake (Plate 5).

11) The road follows the east side of a north/south oriented creek valley. The on site visit of this section of the road corridor resulted in the location of a 3 km section of creek valley bordered by numerous small hills. The area was considered to have elevated potential for site recovery. The testing program for this section of the road consisted of shovel testing all hills in the corridor. In total the field crew tested 22 hills on the east side of the valley and a total of 113 shovel tests were completed. No archaeological or historic sites were located.
12) The road crosses the stream in two spots at what appears to be a convergence of three small valleys. Several elevated hills are present in the area. This location proved to be a northern extension of the previously described complex of hills. The field crew completed 43 more tests on hills and at stream crossing in the road corridor. No sites were located though we did find the remains of one fairly modern hunting camp likely dated to the 1970s (id from a pull-tab soda can). The road alignment has been rerouted to avoid this location and is now located to the east. The new alignment was checked by helicopter in 2006 and consultant believes the area has low potential for heritage site presence. No further work is required.
13) The road crosses a minor stream. The site was tested and no artifacts were recovered.
14) A small pond within a small rock valley at the base of Slate Mountain. An old access road passes through this valley on the north side of a small stream. The ridges on the north side of the valley were tested on a 20 m grid. A total of five high potential localities (one of which is the new mine camp locality) were identified and 93 tests were completed. No artifacts or sites were located.
15) Small alpine lakes (Likely kettle/kame feature) within the major claim area. There is relatively high potential for site presence and the localities should be subsurface tested prior to major development activity. The site was not tested because the area is not going to be impacted by the present development.
16) Linear ridge overlooking a small stream. Possible hunting lookouts sites may be located on the ridge. Moderate to low potential. When this locality was field checked the steepness of the topography precluded heritage sites potential. No testing was conducted.
17) There are portions of western and eastern bank of Red Mountain Creek with a well-defined ridgeline. The in field visit to this location resulted in the reassignment of site potential from moderate to nil because creek terrace proved to be too highly elevated (approximately 200-300 m). No testing of the site was completed.

Plate 4: View west of small lake (location 10).

Plate 5: Hill lined valley draining to south. Location 11 and 12.

Plate 6: Relatively modern hunting camp remains. Location 12.

Plate 7: Tin airtight stove associated with modern camp remains. Location 12.

Map Sheet 105F/04

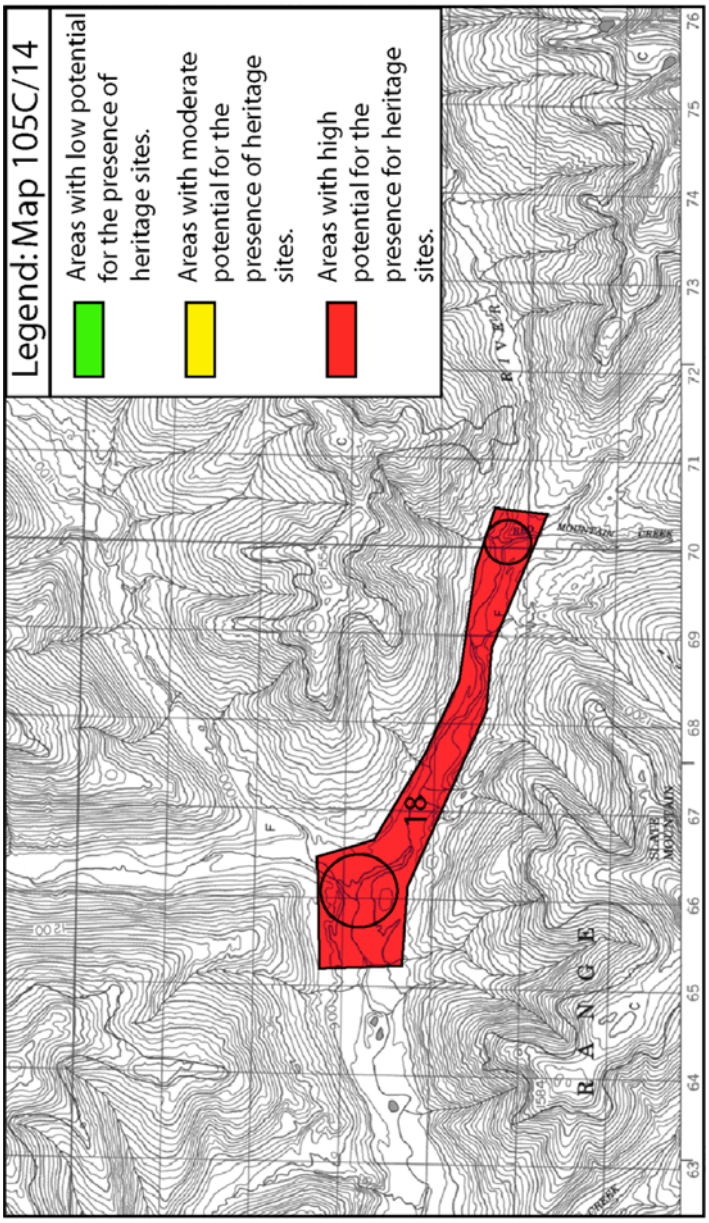

Figure 5: Map sheet 105F/04 showing highlighted areas with heritage potential.

Locality Notes for Map Sheet 105F/04:

18) Boswell River Valley section. Highest potential in the area appears to be at the former's confluence with Red Mountain Creek and an unnamed creek flowing into the valley from the north that is located roughly 4 km west of Red Mountain Creek (black circles). Both confluences have a number of well-defined terraces near the current river channel. Orthographic photos suggest the presence of paleo-river channels that are considered have similarly high archaeological potential. When the 2005 field testing was completed a mine camp and a mine portal were propose for the terrace area on the south side of the Boswell River. The proposed camp location was considered to have elevated potential for heritage sites and was tested (25 shovel tests) but none were found. Subsequently, development sites in

the Boswell River valley bottom have been abandoned. No further heritage site assessment work will be required at present.

Recommendations and Conclusion

During the 2005 and 2006 field seasons a heritage sites inventory was completed at various development localities in Tintina Mines Ltd Red Mountain Property. The bulk of the assessment work focused on inventorying high potential localities along the mine's access corridor. The results of the field project indicate that no heritage sites are located in the development impact zones, and thus, none will be impacted by the upgrading of the access road, the development of the mine camp, the construction of the mill and tailings dump and the excavation of the mine's principal portal. For areas that are to be upgraded and expanded under the current mine development plan the consultant recommends that no further heritage sites impact assessment work is required.

Several areas with high potential for the presence of heritage sites were identified that were not assessed during the field study because these areas are not being planned for development at this time (Thomas 2005). These include the Boswell River valley and adjacent terraces located on the north side of Slate Mountain (Area 18; Figure 5) as well as two kettle lakes in the high alpine plateau to the south of Slate Mountain (location 15; Figure 4). These areas were not assessed because Tintina Mines Ltd does not intend to develop these areas under the current development plan and will not be impacting the areas. Should, in the future, Tintina Mines Ltd choose to develop mine or other facilities in these areas, an archaeological impact assessment should be carried out in advance of the developments. No further recommendations are forthcoming at this time.

References

Government of Yukon

Clague, J. J., S. G. Evans, V. N. Rampton and G. J. Woodsworth
1995 Improved age estimates for the White River and Bridge River tephras, western Canada. *Canadian Journal of Earth Science* 32(8):1172-1179.

Clark, D. W.
1983 Is there a Northern Cordilleran Tradition? *Canadian Journal of Archaeology* 7(1):23-48.

Clark, D. W. and R. M. Gotthardt
1999 Microblade complexes and traditions in the interior northwest, as seen from the Kelly Creek site, west-central Yukon. *Heritage Branch Government of the Yukon Hude Hudän Series, Occasional Papers in Archaeology* No. 6.

Group, Y. E. W.
2004 Klondike Plateau. In *Ecoregions of the Yukon Territory: Biophysical properties of Yukon landscapes*, edited by C. A. S. Smith, J. C. Meikle and C. F. Roots, pp. 159-168. vol. PARC Technical Bulletin No. 04-01. Agriculture and Agri-Food Canada, Summerland, British Columbia.

Hare, G., S. C. Greer, R. Gotthardt, R. S. Farnell, C. E. Schweger and D. Strand
2004 Ethnographic and archaeological investigations of alpine ice patches in southwest Yukon, Canada. *Arctic* 57(3):260-272.

Hare, P. G.
1995 Holocene occupations in the southern Yukon: New perspectives from the Annie Lake site. *Heritage Branch Government of the Yukon Hude Hudän Series, Occasional Papers in Archaeology* No. 5.

McClellan, C.
1975 My old people say: An ethnographic survey of southern Yukon Territory, Parts 1 & 2. *Mercury Series Publications in Ethnology Paper* No. 137.

1987 *Part of the land, part of the water*. Douglas & McIntyre, Vancouver.

Thomas, C.
2005 *Archaeological overview assessment for the Red Mountain claim area*. Thomas Heritage Consulting, for Access Consulting Group (report on file with Heritage Resources Unit, Government of Yukon).

Workman, W. B.
1978 Prehistory of the Aishihik-Kluane area, southwest Yukon Territory. *National Museum of Man Mercury Series, Archaeological Survey of Canada Paper* No. 74.