

DISTRICT	Rosebud
DIST_NO	4010
COUNTY	Pershing
If different from written on document	
TITLE	Rosebud - Jim Clark 1999 file
If not obvious	
AUTHOR	Clark J; Allen K
DATE OF DOC(S)	1999
MULTI_DIST Y / N?	<input checked="" type="radio"/>
Additional Dist Nos:	
QUAD_NAME	Sulphur 7½'
P_M_C_NAME (mine, claim & company names)	Rosebud Mine; Hecla Mining Co.; Applied Petrographica
COMMODITY	gold, silver
If not obvious	
NOTES	Correspondence; geology; petrography; assays Handwritten notes; invoices; mine map.
	18 p.

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

Revised: 1/22/08

SS: DP 9/11/08
Initials Date
DB: Initials Date
SCANNED: Initials Date

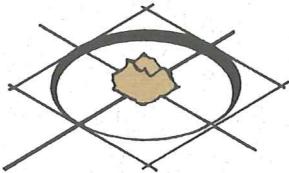
Jim CLARK 1999

60001963

4010

60091963

4010



APPLIED PETROGRAPHICS

27 December 1999

Kurt D. Allen
Chief Geologist
Rosebud Mining Company, LLC
P.O. Box 2610
Winnemucca, NV 89446

Dear Kurt:

Thanks again for all the work you have given me over the past year. I appreciate it very much. I apologize for the amount of time it has taken me to get the big report completed. Turn around time should be light years faster now that I have left AMT. I spoke to Tony Mariano last week or the week before, and he said that he would be willing to do some SEM work on samples of my choosing gratis. If you are interested, I can choose 1-3 sections from your suite of samples and get some semi-quantitative EDAX analyses of key ore minerals. I think it would be a good idea to confirm identification of the silver minerals, as they are often difficult to distinguish from one another. The data would be particularly useful to complement a presentation at a national meeting. Let me know what you want to do. I can also get slides made from photomicrographs if you need them.

I am going to do about two weeks of consulting work for AMT in January, and I'm still in the running on a bid for petrographic services that I put into ASARCO-Ray Unit. This would be for 15-20 samples per month for a year or more, but just basic, bare bones descriptions. The job would pay the kids' tuitions, though. I probably won't find out until the ASARCO takeover by Grupo Mexico is farther along.

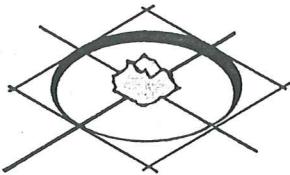
I hope you and your family had a great Christmas. I spent mine working on two more reports after I finished with yours. I did take time to sip a few drams of the single malt, however. And I got some replenishment for what I drank in my stocking. Best wishes to Rebecca and the kids. I'll be in touch.

Sincerely,

APPLIED PETROGRAPHICS

James G. Clark, Ph.D.
4501 North Paseo Pitiquito
Tucson, Arizona 85750

Kurt D. Allen
Chief Geologist
Rosebud Mining Company, LLC
P.O. Box 2610
Winnemucca, NV 89446



APPLIED PETROGRAPHICS

28 November 1999

Kurt D. Allen
Chief Geologist
Rosebud Mining Company, LLC
P.O. Box 2610
Winnemucca, NV 89446

Dear Kurt:

Enclosed is Mike Spilde's SEM/electron microprobe analytical report for sample RS-475-99. Unfortunately, the small grain was chalcopyrite, rather than native gold. Mike was able to identify low levels of gold (4-7 ppm Au) in what he called "type 2 pyrite". This pyrite appears morphologically to be the skeletal composite pyrite-marcasite crystals similar to those I've described from many of the samples you sent me from the Rosebud epithermal system. This supports the interpretation that sample RS-475-99 has undergone some influencing interaction with the Rosebud epithermal system.

If these gold levels are characteristic of the skeletal composite pyrite-marcasites, then some of the samples I am looking at that assay in the neighborhood of 0.1 opt Au, and that contain significant skeletal pyrite-marcasite crystals, may have much of their gold tied up in the refractory pyrite-marcasites. In fact these samples seem to have little in the way of Au-Ag minerals, and lack chalcopyrite, as well. I'm rambling, but this is good information to have to interpret the lower grade samples.

The invoice for the SEM/Microprobe work is as follows:

SEM/Microprobe analytical report by M. N. Spilde (invoice copy included)	\$251.30
Applied Petrographics coordination fee (15%)	<u>\$ 37.70</u>
Total	\$289.00

*86-5010-542
(LMA)*

With regard to the larger job, basic descriptions are complete for all samples. I'm in the process of cleaning up the English for inclusion in the report and organizing the photos. The full report should be in your hands before year's end.

I have officially resigned from AMT effective the end of December. In actuality I'm working 2/3 time for AMT during November, December, and January. Lamar was here over Thanksgiving, so I guess there was more imbibing than working done during his visit. I hope you and your family had a great Thanksgiving holiday. Give our best to Rebecca and the kids. I'll be talking with you soon.

Sincerely,

Jim
James G. Clark

Hecla Mining Company - Rosebud Mine

RB55	Thin Section	DH	RL-106	529'	Upper Bud			
RB56a								
RB56b	Thin Section		Surf	200' N20E of W. Alps outcrop	Auto bxa?			
RB57	Thin Section	DH	94-322	543.5'	Middle Bud Unit	<0.001	<0.02	
RB58	Thin Section	DH	94-317	505'	Bud Marker Porph	223 ppb	2.7 ppm	
RB59								
RB60a	Thin Section	4808	14	P0	Plat			
RB60b	Polished Thin Section	4772	21	Acc	PI at start of Ore, WC+Pyrag+Sulfides			
RB60c	Thin Section	4808	14	P0-2+01'	Plat/Vitrophyre			
RB61a	Thin Section	DH	RL-193	339-341'	LST		0.128	0.3
RB61b	Thin Section	4553	31	S4	P1BS+52.6	58601	0.014	1.06
RB61c	Thin Section	4736	21	S6	LST			
RB61d	Thin Section	4772	21	P1	LST - sampled 3/18/98			
RB62								
RB63a	Polished Thin Section	DH	RL-159	655-657'	PMBX w/sulfide veinlet		0.967	1.44
RB63b	Thin Section	2300	23	S1	PMBX			
RB64	Thin Section	4508	25	S1	S1-1g+20 LR	Lower Plam		
RB65a	Polished Thin Section	4472	25	P2		Lower PMBx		
RB65b								
RB66								
RB67								
RB68								
RB69a	Thin Section	DH	94-311	1096'	TOS		<0.001	<0.02
RB69b	Thin Section	DH	94-317	1071'	TOS		0.006	<0.02
RB70a	Thin Section	4749	41	Acc	T41BS+71 LR			
RB70b	Thin Section	4749	41	Acc	T41BS+69 LR	Dozer		
RB71								
RB72	Thin Section	DH	D-91-94	890'	ALS		<0.001	<0.02

HECLA MINING COMPANY

COEUR D'ALENE, IDAHO 83815

BY	DATE	JOB TITLE	JOB NO.
CHK.	DATE		DIVISION
DWG. NO.		Petrography Samples	SHEET OF

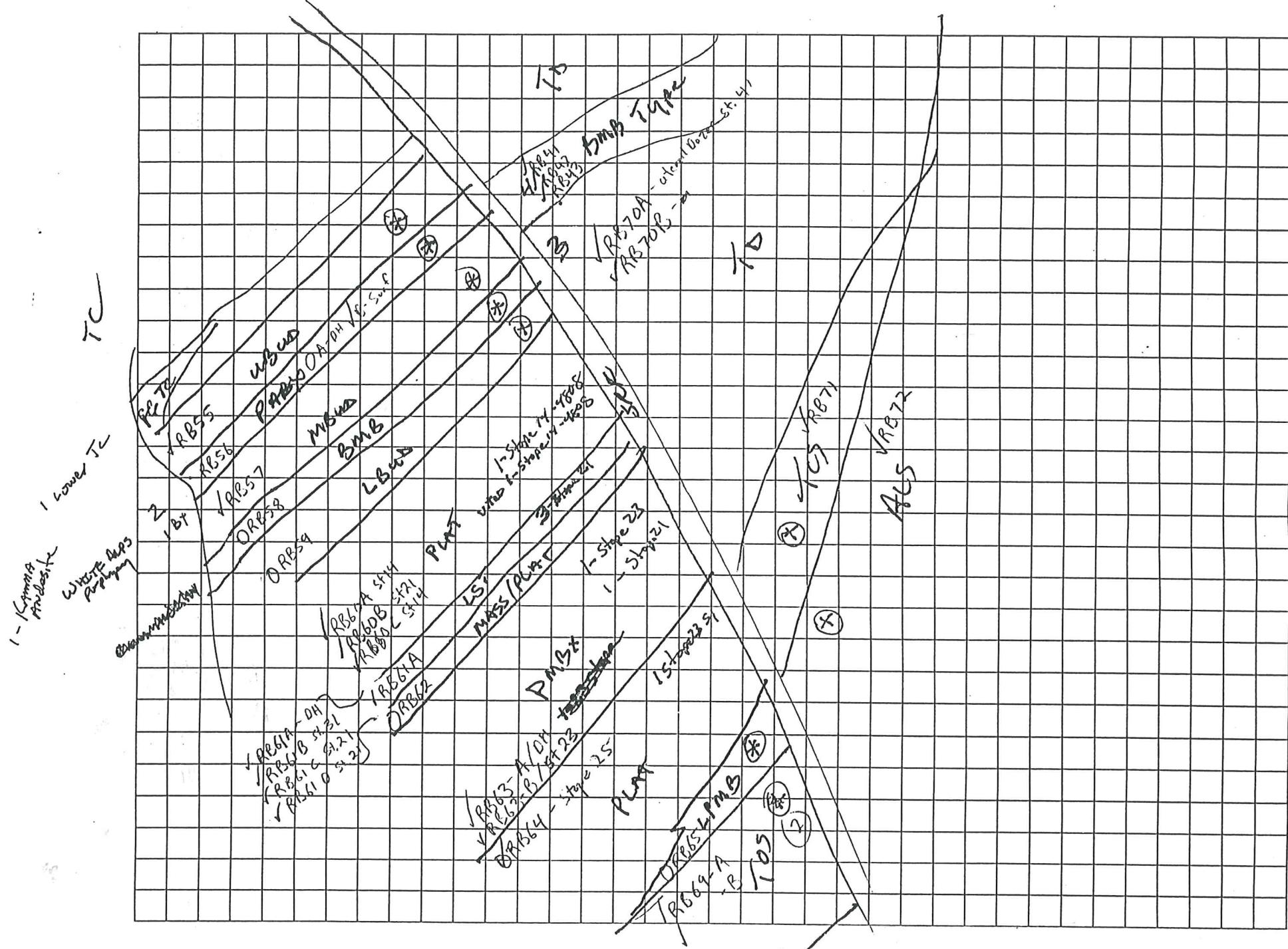
- Map of sample locations
- Short Description of stratigraphy
- Any New Assay DATA on samples.

Kurt,
- Set w/ Maps
for Petrologist
- attached are copies for your files
TGS

Hecla Mining Company - Rosebud Mine

5 ← In access
60' outside
use zone

RB55	Thin Section	DH	RL-106	529'	Upper Bud			
RB56a								
RB56b	Thin Section		Surf	200' N20E of W. Alps outcrop	Auto bxa?			
RB57	Thin Section	DH	94-322	543.5'	Middle Bud Unit	<0.001	<0.02	
RB58	Thin Section	DH	94-317	505'	Bud Marker Porph	223 ppb	2.7 ppm	
RB59								
RB60a	Thin Section	4808	14	P0	Plat			
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RB70b	Thin Section	4749	41	Acc	T41BS+69 LR	Dozer		
RB71								
RB72	Thin Section	DH	D-91-94	890'	ALS		<0.001	<0.02



STRATIGRAPHY

Kamma Mountain Volcanics (Tertiary)

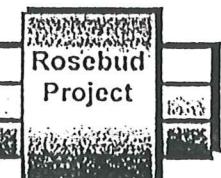
- Badger Formation
 - volcaniclastic breccia, conglomerates, epiclastics
 - post-mineral
- Chocolate Formation
 - rhyolitic to trachytic flows & volcanic breccia
 - Far East
- Bud Tuff
 - latitic ash flow tuff, tuff breccia, & epiclastics
 - porphyritic alkali rhyolite flow
- LBT (Lower Bud Tuff)
 - waterlain & airfall ash tuff, lithic ash flow tuff, & tuff breccia
 - main ore host South & North Zones

--- Unconformity --- South Ridge Fault ---

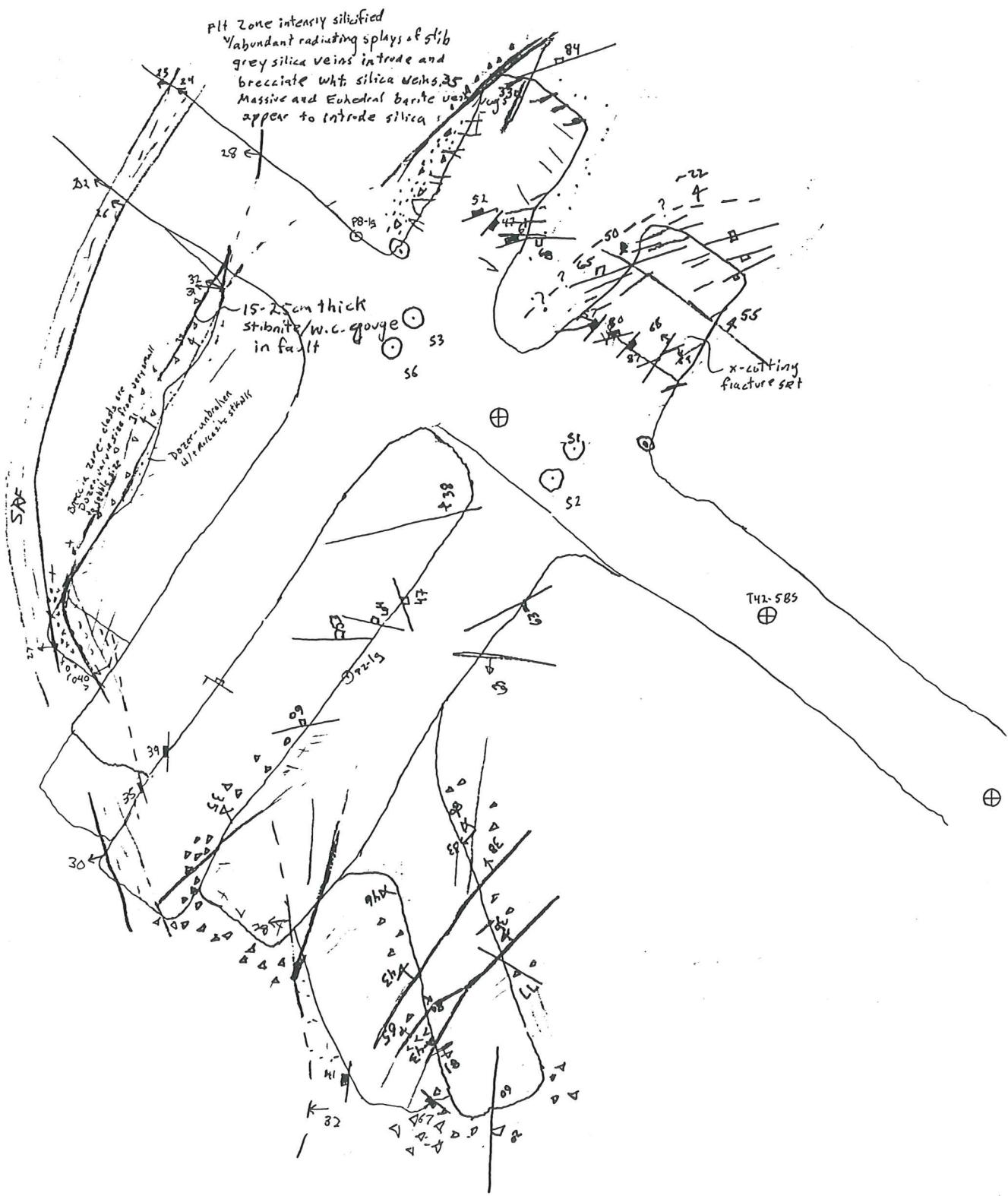
- Dozer Formation
 - very fine-grain, siliceous ash flow
 - main ore host East Zone (\pm North Zone)

--- Angular Unconformity ---

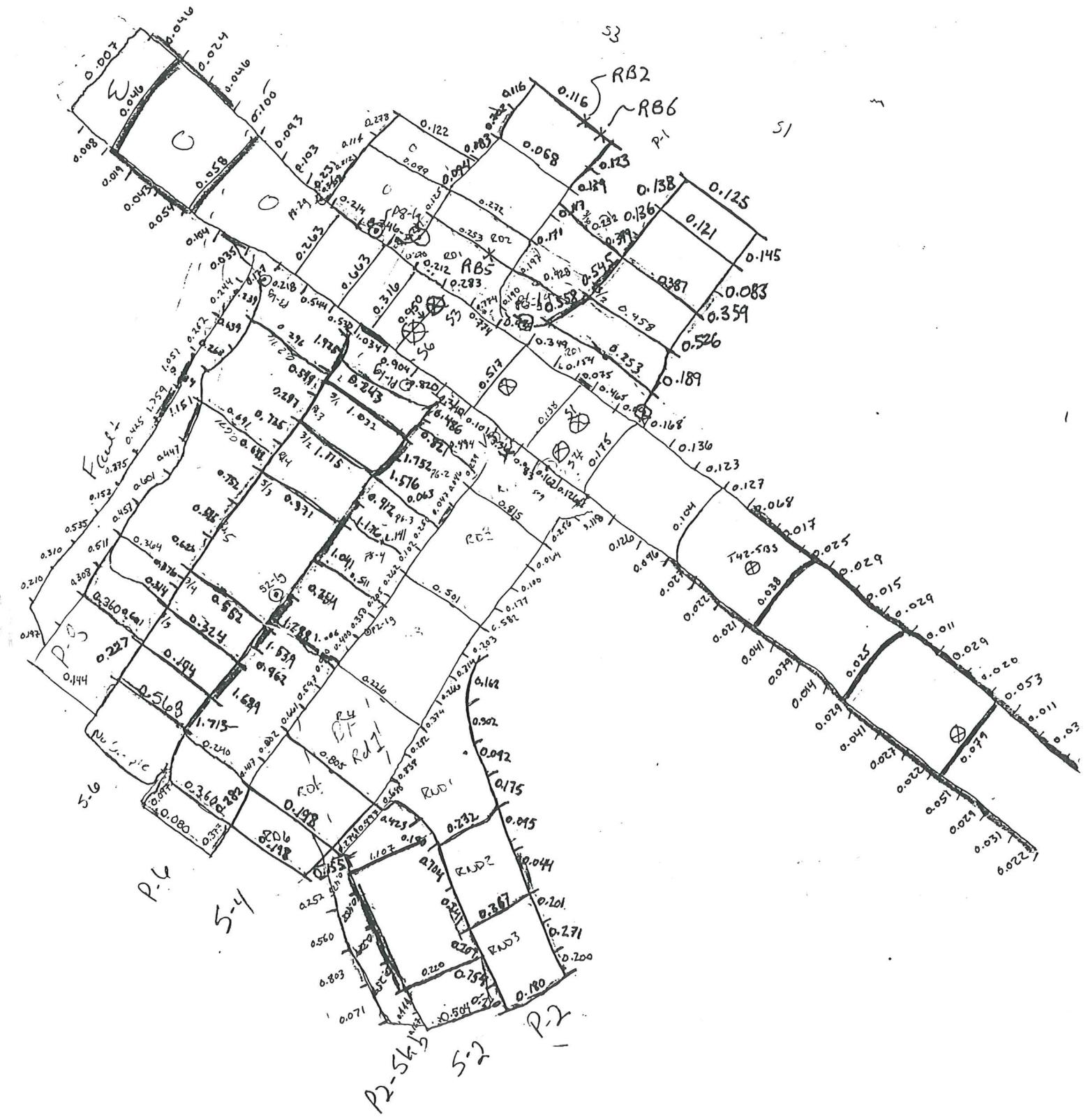
Auld Lang Syne Group
- Jurassic-Triassic metasediments



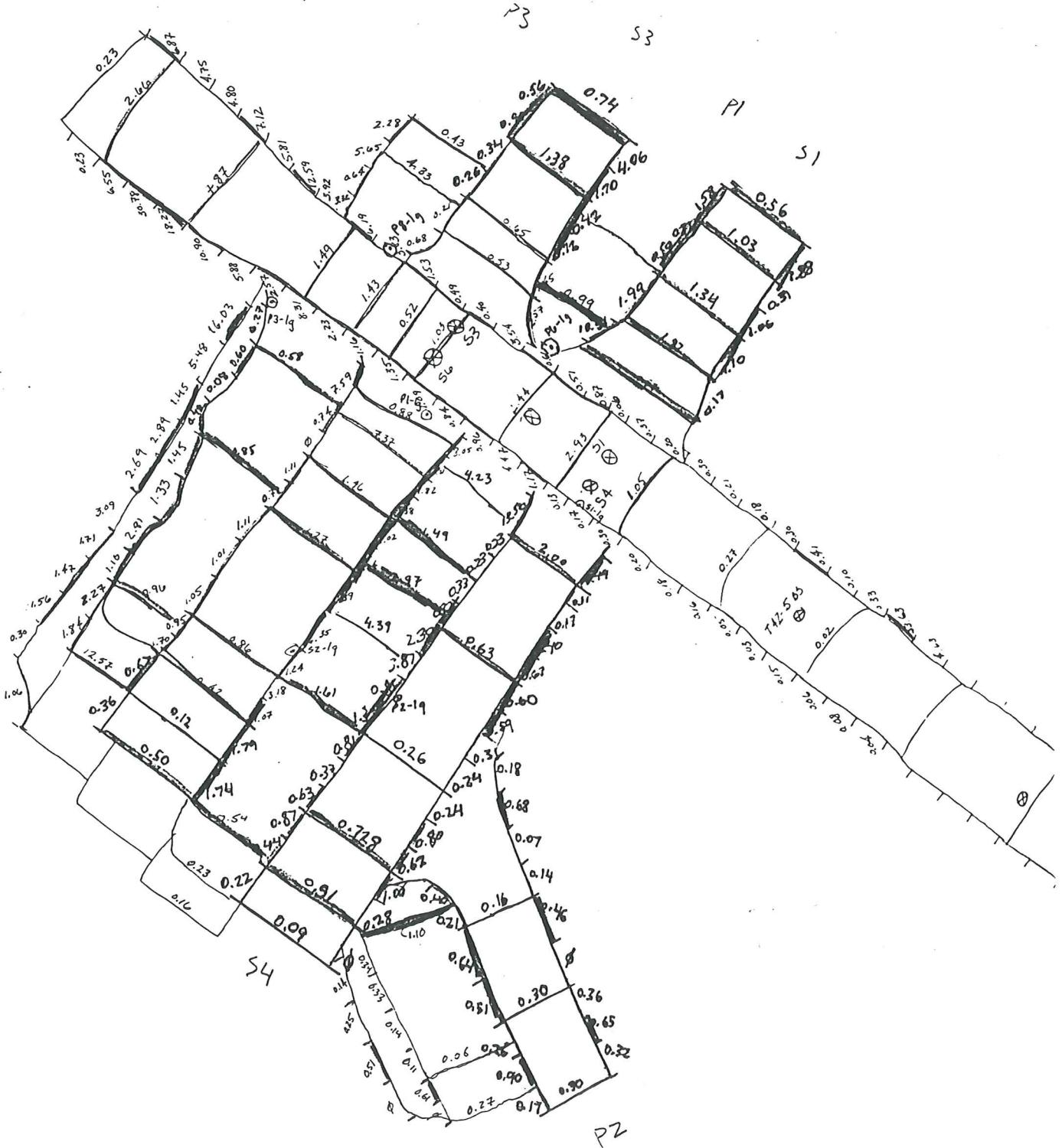
Rosebud Mine
Stope 42 - 4679 elev
Geology Map



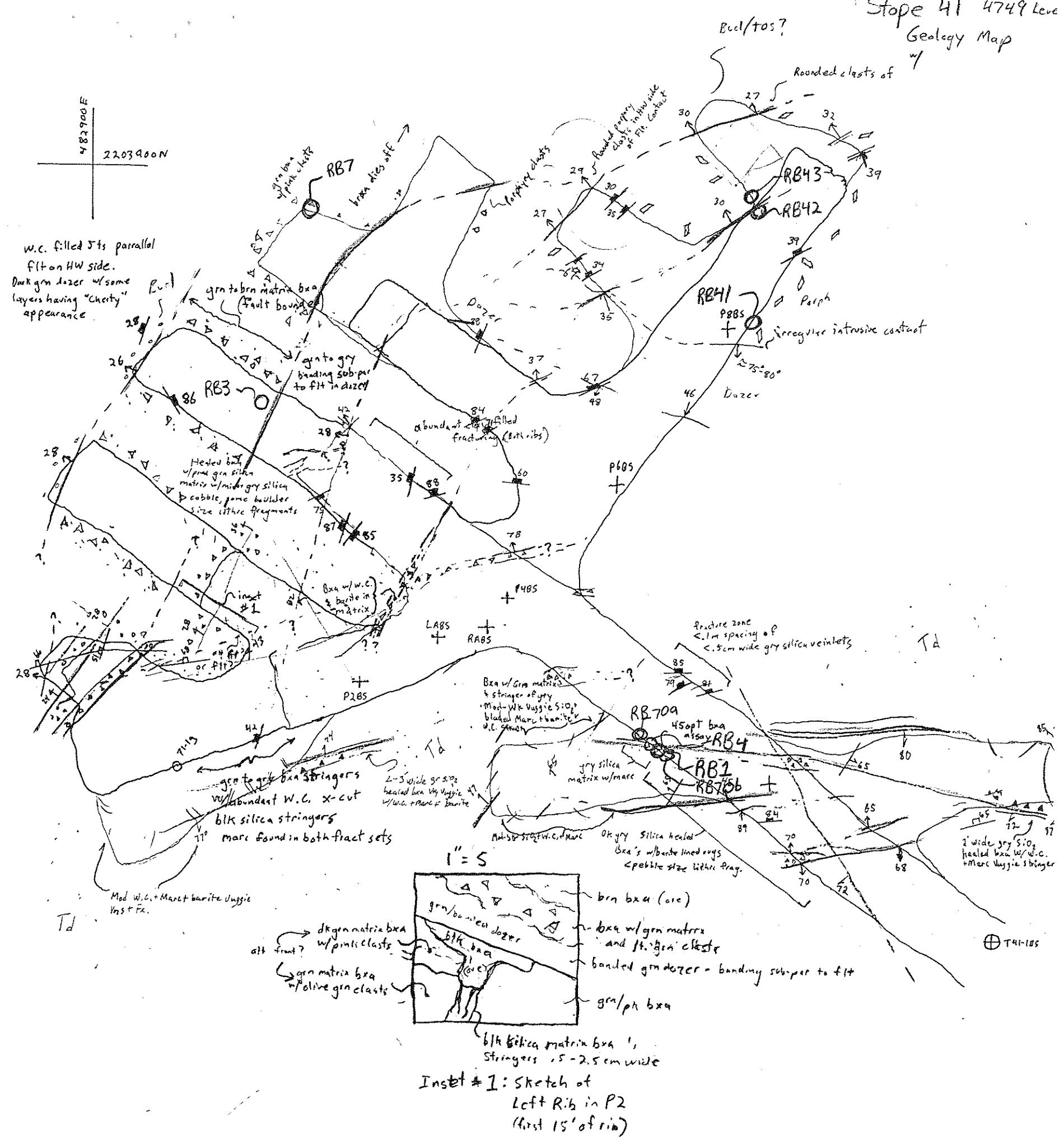
Rosebud Mine
Stop 42 - 4679 elev
Au - Map

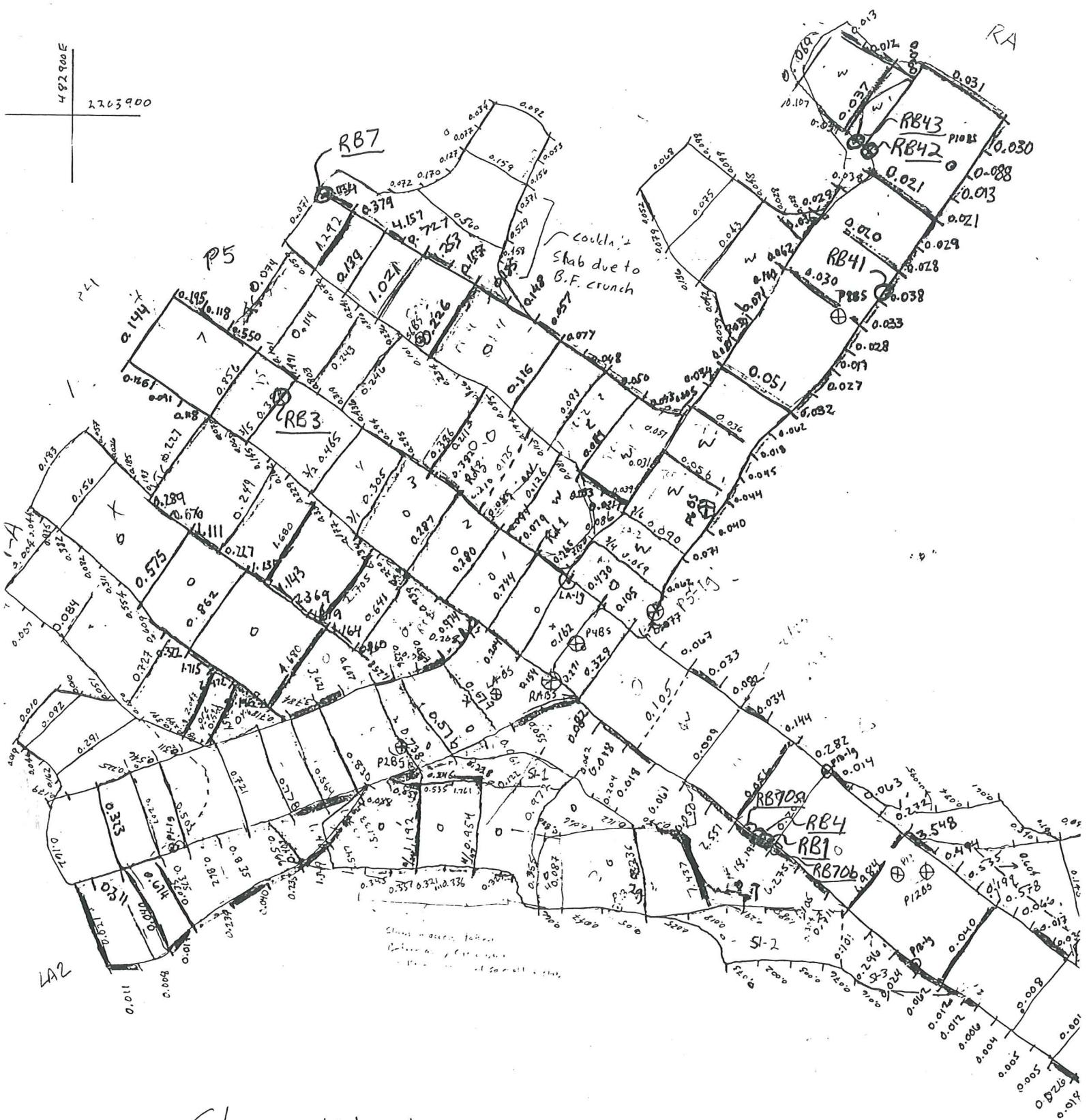


Rosebud Mine
Stope 42 - 4679 elev
Ag - Map

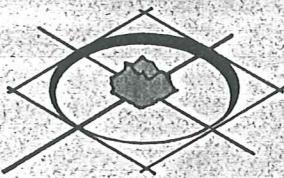


Stope 41 4749 Level
Geology Map





Stope 41 4749 Level
Au Assay Map - (opt)
w/ Petrography Sample Locations



APPLIED PETROGRAPHICS

19 October 1999

Kurt D. Allen
Chief Geologist
Rosebud Mining Company, LLC
P.O. Box 2610
Winnemucca, NV 89446

Dear Kurt:

This letter serves as my invoice for the petrographic report identified below, done at your request by Applied Petrographics. The charges are itemized as follows:

Petrography of a vein sample from the Rosebud mine area, Nevada (Sample RS-475-99, 2887.8')

Petrographic examination and report preparation	7 hours @ \$50/hr	\$350.00
Photomicrographs	14 photos @ \$3/photo	\$ 42.00
Copying, binding, and postage		<u>\$ 28.80</u>
TOTAL		\$420.80

Please have the check made out to: **APPLIED PETROGRAPHICS**. The taxpayer identification number is 273-44-3430.

I received an email from Mike Spilde at the University of New Mexico on Saturday regarding the sample in the aforementioned report. Mike says that the small grain in question appears to be chalcopyrite, rather than gold. He picked up some weak gold X-rays during the X-ray mapping of the slide using energy-dispersive spectrometry and thinks that they are related to gold substitutional in pyrite. Mike was going to follow up with more quantitative wave-length dispersive spectrometry on Sunday. I'll let you know when I get the results.

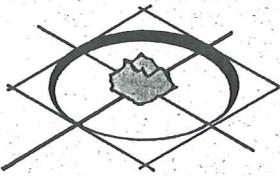
I still hope to have all of your samples described by month's end. I'll call you from Coeur d'Alene to discuss your preferred format for the report.

Thanks again for the business. If you have any questions, call or email. Regards to the family.

Sincerely,

James G. Clark

86-2526-542



APPLIED PETROGRAPHICS

22 September 1999

Kurt D. Allen
Chief Geologist
Rosebud Mining Company, LLC
P.O. Box 2610
Winnemucca, NV 89446

Dear Kurt:

This letter serves as my invoice for the two petrographic reports done at your request by Applied Petrographics. The charges are itemized as follows:

Petrography of a high-grade vein sample from the Rosebud Mine, Nevada (Sample 24-4532):

Petrographic examination and report preparation	7 hours @ \$50/hr	\$350.00
Photomicrographs	9 photos @ \$3/photo	\$ 27.00
Copying, binding, and postage		<u>\$ 24.16</u>
Sub-total		\$ 401.16

Distribution of gold-bearing mineral phases in tailings samples from the Rosebud Mine, Nevada:

Petrographic examination and report preparation	16 hours @ \$50/hr	\$800.00
Photomicrographs	16 photos @ \$3/photo	\$ 48.00
Copying, binding, and postage		<u>\$ 28.46</u>
Sub-total		\$ 876.45

TOTAL

86-5010-542 *RK*

\$1,277.61

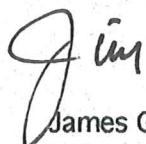
Please have the check made out to: **APPLIED PETROGRAPHICS**. The taxpayer identification number is 273-44-3430.

I received your email regarding the sample from the new exploration target. I'll do the work the day I get the sample. I left Ray a message this morning regarding the need to expedite sample preparation, as well as sample impregnation and finishing the section with an ultrasound bath to remove polishing grit.

I'm making good progress on the the other work. I've looked at more than half the samples on the CL instrument and have begun the reflected light work. There are some interesting ore textures. I'll keep you apprised as the work continues. Lamar is hassling me about his stuff, as I think they want to make a decision on one of two Mexican feldspar deposits. I hope to get back to the Rosebud samples by week's end.

If you or Dale Dean have any questions about the tailings work, please call. I appreciate your business very much. Please give my regards to Rebecca and the kids.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Clark".

James G. Clark