

**GEOLOGY AND SUMMARY REPORT OF  
THE LONE STAR CLAIM GROUP  
(KLONDIKE GOLDFIELD), YUKON  
TERRITORY**

Report prepared for Lonestar Gold Inc.

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15<sup>th</sup> November 2011

43-101 REPORT

## CONTENTS

1.	SUMMARY	p.	5
2.	INTRODUCTION	p.	7
3.	RELIANCE ON OTHER EXPERTS	p.	8
4.	PROPERTY DESCRIPTION & LOCATION	p.	9
5.	ACCESS & TOPOGRAPHY	p.	31
6.	HISTORY	p.	35
7.	GEOLOGICAL SETTING	p.	56
7b	GOLD MINERALIZATION	p.	71
8.	DEPOSIT TYPES	p.	77
9.	EXPLORATION	p.	79
10.	DRILLING	p.	90
11.	SAMPLE PREPARATION	p.	105
12.	DATA VERIFICATION	p.	105
13.	MINERAL PROCESSING	p.	106
14.	MINERAL RESERVE ESTIMATES	p.	109
15.	INTERPRETATION & CONCLUSIONS	p.	110
16.	RECOMMENDATIONS	p.	111

## FIGURES

Fig. 1	Location of the Lone Star project	p. 28
Fig. 2	Claim map	p. 29
Fig. 3	Geographical names	p. 30
Fig. 4	Regional Geology	p. 33
Fig. 5	The Boulder opencut (1912)	p. 34
Fig. 6	Arbor Resources 1987 Drill section, Buckland zone	p. 41
Fig. 7	Rotary drilling intersections Gay Gulch – Oro grande	p. 42
Fig. 8	Arbor Res. Lone Star soil grid	p. 44
Fig. 9	I.P. anomalies, Arbor Resources 1989	p. 45
Fig. 10	Trenches with significant assays: Gay Gulch to Oro Grande	p. 46
Fig. 11	Kennecott Rotary drilling Lonestar to Pioneer	p. 48
Fig. 12	Kennecott drilling at Lone star	p. 49
Fig. 13	Cross section – Kennecott drilling	p. 50
Fig. 14	Kennecott Lone Star 200W drill section	p. 51
Fig. 15	Soil gold anomalies Kennecott 1994	p. 53
Fig. 16	F <sub>2</sub> & F <sub>3</sub> folding in drill core	p. 59
Fig. 17	Meta-rhyolite in drill core	p. 60
Fig. 18	Photomicrographs of Klondike schist	p. 61
Fig. 19	Folding (F <sub>1</sub> , F <sub>2</sub> & F <sub>3</sub> ) at Eldorado Dome	p. 63
Fig. 20	2007 re-mapping of the Lone Star area	p. 65
Fig. 21	2007 cross section for the Lone Star area	p. 66
Fig. 22	Gold in quartz, DDH 05LS05, 37.28m	p. 67
Fig. 23	Buckland: mineralization in D <sub>4</sub> deformation	p. 69
Fig. 24	Post D <sub>4</sub> pyrite with schist inclusion	p. 72
Fig. 25	Gold that was moulded around pyrite, Tr 87-16	p. 74
Fig. 26	Gold included in a pyrite crystal 05LS05 82.5m	p. 75
Fig. 27	Lone Star trenches	p. 80
Fig. 28	The Lone Star thrust fault	p. 81

Fig. 29	2006 IP survey: anomalies	p. 83
Fig. 30	2006 IP survey: chargeability at 50m	p. 84
Fig. 31	2006 IP survey: resistivity at 50m	p. 85
Fig. 32	Soil geochemistry Little Blanche – Quartz Ck.	p. 88
Fig. 33	Canyon Ck. – Quartz Ck. mineralization	p. 89
Fig. 34	Nugget zone: plan	p. 96
Fig. 35	Buckland: diamond drilling plan	p.100
Fig. 36	Buckland: diamond drilling cross section	p.101
Fig. 37	Pioneer zone: drill plan	p.103
Fig. 38	Pioneer zone: drill cross section	p.104
Fig. 39	Historical ore pile at the Violet Mine	p.115

## **TABLES**

Table 1.	Quartz Claims	p. 9
Table 2.	Summary of 2005 drill intersections	p. 92
Table 3.	Summary of 2006 drill intersections	p. 97
Table 4.	Mill results 2005	p.107
Table 5.	Mill results 2006	p.108

## 1. SUMMARY

The search for the hard-rock source of the Klondike placer gold deposits has been pursued from 1898 until the present day. The Lone Star Crown Grant (7) and 699 quartz claim block under option to Lonestar Gold Inc. covers the region from Eldorado Creek to Bonanza Creek and north to Boulder Creek, much of the historical placer goldfield. Nineteenth century prospecting resulting in the discovery of quartz-vein associated gold on the ridges containing the Lone Star and Violet lodes, with the development of underground and open-cut workings on these two properties. This report is intended to summarize the exploration programmes to date and to provide an introduction to the setting of gold mineralization in the goldfield.

Until the start of exploration by Klondike Star Mineral Corp. ('KSMC') in 2004 prospecting for hard-rock gold consisted of searching for quartz veins irrespective of their relative age and structural setting. Consequently, much barren ground was excavated. The KSMC exploration programme commenced with a structural analysis of the Klondike schist as a cooperative research project with the Mineral Deposit research Group of the University of British Columbia. This research has demonstrated that gold in quartz is limited to the latest stage of vein development (termed D<sub>4</sub>), being associated with the fourth deformation event in the Yukon-Tanana terrane, which is represented by the Klondike schist in the western Yukon. Earlier generations of quartz veining, although they might have prominent outcrop are barren. The Lone Star – Pioneer – Parnell trend of mineralization has been shown to be a region of intense D<sub>4</sub> folding superimposed upon prior D<sub>3</sub> structures. It is only during the last four years that this research has identified the principal controls on gold mineralization.

Since the Klondike region has had a long history of weathering most exploration since the 1960s has relied upon the generation of rock exposure by excavators. Trenches have been cut across the Lone Star trend and these were sampled for assay. Diamond and rotary percussion drilling beneath the mineralized zones indicated by surface work has delineated a significant volume of ore-grade rock at the Lone Star, but this type of work has not exhaustively investigated the rest of the ridge trend. Airborne magnetic and surface Induced Polarization geophysical surveys between 1987 and 2007 have identified

anomalies that are only partially tested by drilling. The Pioneer area is a priority for a 2012 drill programme. Soil geochemistry has identified gold anomalies in new areas (herein called the 'JF', 'Little Blanche' and 'Quartz Creek areas'). These await further prospecting. The whole of the ridge on the western side of Eldorado Creek, containing the historical Violet Mine and the '310 Zone', has received little systematic prospecting. This region will receive attention in 2012.

The recommendation for 2012 is to evaluate the remainder of the Lone Star – Parnell trend by diamond drilling before attempting any further infill drilling at Lone Star; to perform deep drilling at Lonestar to investigate the deeper part of the ridge; to further excavate and sample the JF zone and the 'grass-roots' prospects mentioned above and to prospect the part of the claimblock on the Violet ridge. Research into the outcrop-scale controls on mineralization should continue, as should the cooperative research with the MDRU.

Although there has been forty years of modern-style prospecting in the Klondike much prospective ground remains untested and indicates a positive potential for the Company.

## 2. INTRODUCTION

### ISSUER OF THE REPORT

This report was prepared for Lonestar Gold Inc.

### TERMS OF REFERENCE

This report summarizes the exploration work performed on the Lone Star claim block from the inception of hard-rock prospecting (1898) until the completion of exploration activity by Klondike Star Inc. and Klondike Gold Corp. at the end of 2007 and includes research carried out by the Mineral Deposit Research Group of the University of British Columbia (Professor J.K. Mortensen and Colleagues) and the University of Leeds, U.K. (Dr. R. Chapman) to 2011. The present operator of the property is Lonestar Gold Inc.

### SOURCES OF INFORMATION

Historical data for the period 1898-1948 was obtained from MINFILE entries and copies of maps from the Dawson archive, plus historical material supplied by Professor J.K. Mortensen of the University of British Columbia (UBC). Assessment and company reports for 1961: (Hilchey), 1983: (Mortensen), 1986: (Grunenberg and Troup), (Van Angeren), 1987: (Gonzales) (Grunenberg and Gonzales), (Walcott), 1988: (Grunenberg), 1989: (Grunenberg), (Van Angeren), 1996: (Gorton), (Van Angeren), 1997: (Van Angeren) (Hayden and Tilsley), 1999: (Van Angeren), 2002: (Van Angeren) were used. References are given in the bibliography.

Description of the work performed by Klondike Gold Inc. and Klondike Star Inc. is contained within assessment reports for 2004 to 2007, reference to which is given in the bibliography. Data has also been extracted from the original company computer documents. Mineral Deposit Research Unit (MDRU) research has been published in various journals:

(Chapman et al., 2010, Crawford, 2007, MacKenzie et al., 2007, MacKenzie et al., 2008a MacKenzie et al., 2008b, MacKenzie et al. 2008c, Mortensen, 1992, Mortensen. 1984, Mortensen. 1996, Mortensen, 2006, Mortensen, 1992, Rushton et al., 1993.)

## DETAILS OF PERSONAL INSPECTION

The author of this report contributed to the fieldwork from 2004 to 2008: as a consultant during 2004 and as Chief Geologist for Klondike Star Corp. during 2005-2007. Work on the Klondike property by the author, as a consultant to Lonestar Inc., is currently in progress.

### **3. RELIANCE ON OTHER EXPERTS**

The author has first-hand knowledge of work performed between 2004 and 2007 and described in this report. Earlier work is summarized from the various company and Yukon Assessment Reports listed in the bibliography.



#### 4. PROPERTY DESCRIPTION AND LOCATION

The Lone Star property consists of 699 contiguous quartz claims and 14 Crown Grants centred on the Lone star mine in the historical Klondike goldfield (Fig. 1). These cover an approximate area of 130 km<sup>2</sup>. Details of claims are as follows:

Schedule " A " Claims optioned to Lonestar Gold Inc .  
Ownership = KSMC 55% KGC 45 % Lonestar optioned 100 %

Grant No.	ClaimName	ClaimNo.	Claim Holder	Recorded	NTS
YC17895	BAD	1	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC17896	BAD	2	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC17897	BAD	3	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC17898	BAD	4	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC17899	BAD	5	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC17900	BAD	6	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19901	BAD	9	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19902	BAD	10	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19903	BAD	11	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19904	BAD	12	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19905	BAD	14	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19906	BAD	15	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19907	BAD	16	Klondike Gold Corp. - 100%.	05/04/2000	115O14
YC19908	BAD	7	Klondike Gold Corp. - 100%.	06/04/2000	115O14
YC19909	BAD	8	Klondike Gold Corp. - 100%.	06/04/2000	115O14
YC27202	Stam	1	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27203	Stam	2	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27204	Stam	3	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27205	Stam	4	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27206	Stam	5	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27207	Stam	6	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27208	Stam	7	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27209	Stam	8	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27210	Stam	9	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27211	Stam	10	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27212	Stam	11	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27213	Stam	12	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27214	Stam	13	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27215	Stam	14	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27216	Stam	15	Klondike Gold Corp. - 100%.	14/08/2003	115O14
YC27217	Stam	16	Klondike Gold Corp. - 100%.	14/08/2003	115O14

YC27218	Stam	17	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27219	Stam	18	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27220	Stam	19	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27221	Stam	20	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27222	Stam	21	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27223	Stam	22	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27224	Stam	23	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27225	Stam	24	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27226	Stam	25	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27227	Stam	26	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27228	Stam	27	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27229	Stam	28	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27230	Stam	29	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27231	Stam	30	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27232	Stam	31	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27233	Stam	32	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27234	Stam	33	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27235	Stam	34	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27236	Stam	35	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27237	Stam	36	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27238	Stam	37	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27239	Stam	38	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27240	Stam	39	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27241	Stam	40	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27242	Stam	41	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27243	Stam	42	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27244	Stam	43	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27245	Stam	44	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27246	Stam	45	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27247	Stam	46	Klondike Gold Corp. - 100%.	14/08/2003	115014
YC27248	Stam	47	Klondike Gold Corp. - 100%.	14/08/2003	115014
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YC28456	Nug	8	Klondike Gold Corp. - 100%.	09/09/2003	115014
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YC28462	Chi	4	Klondike Gold Corp. - 100%.	09/09/2003	115014
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YC28465	Chi	7	Klondike Gold Corp. - 100%.	09/09/2003	115014
YC28466	Chi	8	Klondike Gold Corp. - 100%.	09/09/2003	115014
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YC28545	LB	7	Klondike Gold Corp. - 100%.	09/09/2003	115014





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YC30698	Win	2	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30699	Win	3	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30700	Win	4	Klondike Gold Corp. - 100%.	27/04/2004	115014

YC30701	Win	5	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30702	Win	6	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30703	Win	7	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30704	Win	8	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30705	Win	9	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30706	Win	10	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30707	Win	11	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30708	Win	12	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30709	Win	13	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30710	Win	14	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30711	Win	15	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30712	Win	16	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30713	Win	17	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30714	Win	18	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30715	Win	19	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30716	Win	20	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30717	Win	21	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30718	Win	22	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30719	Win	23	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30720	Win	24	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30721	Win	25	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30722	Win	26	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30723	Win	27	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30724	Win	28	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30725	Win	29	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30726	Win	30	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30727	Win	31	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30728	Win	32	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30729	Win	33	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30730	Win	34	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30731	Win	35	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30732	Win	36	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30733	Win	37	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30734	Win	38	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30735	Win	39	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30736	Win	40	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30737	Win	41	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30738	Win	42	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30739	Win	43	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30740	Win	44	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30741	Win	45	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30742	Win	46	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30743	Win	47	Klondike Gold Corp. - 100%.	27/04/2004	115014





YC30787	Win	91	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30788	Win	92	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30789	Win	93	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30790	Win	94	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30791	Win	95	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30792	Win	96	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30793	Win	97	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30794	Win	98	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30795	Win	99	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30796	Win	100	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30797	Win	101	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30798	Win	102	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30799	Win	103	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30800	Win	104	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30801	Win	105	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30802	Win	106	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30803	Win	107	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30804	Win	108	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30805	Win	109	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30806	Win	110	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30807	Win	111	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30808	Win	112	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30809	Win	113	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30810	Win	114	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30811	Win	115	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30812	Win	116	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30813	Win	117	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30814	Win	118	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30815	Win	119	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30816	Win	120	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30817	Win	121	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30818	Win	122	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30819	Win	123	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30820	Win	124	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30821	Win	125	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30822	Win	126	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30823	Win	127	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30824	Win	128	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30825	Win	129	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30826	Win	130	Klondike Gold Corp. - 100%.	27/04/2004	115014
YC30827	Win	131	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30828	Win	132	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30829	Win	133	Klondike Gold Corp. - 100%.	30/04/2004	115014

YC30830	Win	134	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30831	Win	135	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30832	Win	136	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30833	Win	137	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30834	Win	138	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30835	Win	139	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30836	Win	140	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30837	Win	141	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30838	Win	142	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30839	Win	143	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30840	Win	144	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30841	Win	145	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30842	Win	146	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30843	Win	147	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30844	Win	148	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30845	Win	149	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30846	Win	150	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30847	Win	151	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30848	Win	152	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30849	Win	153	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30850	Win	154	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30851	Win	155	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC30852	Win	156	Klondike Gold Corp. - 100%.	30/04/2004	115014
YC32830	Cul	1	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32831	Cul	2	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32832	Cul	3	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32833	Cul	4	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32834	Cul	5	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32835	Cul	6	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32836	Cul	7	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32837	Cul	8	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32838	Cul	9	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32839	Cul	10	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32840	Cul	11	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32841	Cul	12	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32842	Cul	13	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32843	Cul	14	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32844	Cul	19	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32845	Cul	20	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32846	Cul	21	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32847	Cul	22	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32848	Cul	23	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32849	Cul	24	Klondike Gold Corp. - 100%.	09/06/2004	115014

YC32850	Cul	25	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32851	Cul	26	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32852	Cul	27	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32853	Cul	28	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32864	Cal	1	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32865	Cal	2	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32866	Cal	3	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32867	Cal	4	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32868	Cal	5	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32877	Cal	19	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32879	Cal	21	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32881	Cal	23	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC32883	Cal	25	Klondike Gold Corp. - 100%.	09/06/2004	115014
YC33726	On	1	Klondike Gold Corp. - 100%.	17/06/2004	115014
YC33727	On	2	Klondike Gold Corp. - 100%.	17/06/2004	115014

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Y 65536	Joe	1	Arbor Resources Inc. - 100%.	23/05/1972	115014
Y 65537	Joe	2	Arbor Resources Inc. - 100%.	23/05/1972	115014
Y 65538	Joe	3	Arbor Resources Inc. - 100%.	23/05/1972	115014
Y 65539	Joe	4	Arbor Resources Inc. - 100%.	23/05/1972	115014
Y 99613	Joe	5	Arbor Resources Inc. - 100%.	26/05/1975	115014
Y 99614	Joe	6	Arbor Resources Inc. - 100%.	26/05/1975	115014
Y 99615	Joe	7	Arbor Resources Inc. - 100%.	26/05/1975	115014
Y 99616	Joe	8	Arbor Resources Inc. - 100%.	26/05/1975	115014
Y 99617	Joe	9	Arbor Resources Inc. - 100%.	26/05/1975	115014
Y 99618	Joe	10	Arbor Resources Inc. - 100%.	26/05/1975	115014
YA10300	Ron	1	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10301	Ron	2	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10302	Ron	3	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10303	Ron	4	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10304	Ron	5	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10305	Ron	6	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10306	Ron	7	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10307	Ron	8	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10308	Ron	9	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10309	Ron	10	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10310	Ron	11	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10311	Ron	12	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10312	Ron	13	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10313	Ron	14	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10314	Ron	15	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10315	Ron	16	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10316	Ron	17	Arbor Resources Inc. - 100%.	08/07/1977	115014

YA10317	Ron	18	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10318	Ron	19	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10319	Ron	20	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10320	Ron	21	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10321	Ron	22	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10322	Ron	23	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10323	Ron	24	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10324	Ron	25	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10325	Ron	26	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10326	Ron	27	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10327	Ron	28	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10328	Ron	29	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10329	Ron	30	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10330	Ron	31	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10331	Ron	32	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10332	Ron	33	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10333	Ron	34	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10334	Ron	35	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10335	Ron	36	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10336	Ron	37	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10337	Ron	38	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10338	Ron	39	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA10339	Ron	40	Arbor Resources Inc. - 100%.	08/07/1977	115014
YA32783	DN	1	Arbor Resources Inc. - 100%.	06/07/1979	115014
YA32784	DN	2	Arbor Resources Inc. - 100%.	06/07/1979	115014
YA32828	Oyro		Arbor Resources Inc. - 100%.	18/07/1979	115014
YA32946	DN	11	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32947	DN	12	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32948	DN	13	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32949	DN	14	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32950	DN	15	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32951	DN	16	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32952	DN	17	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32953	DN	18	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32954	DN	19	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32955	DN	20	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32956	DN	21	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32957	DN	22	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32958	DN	23	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32959	DN	24	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32960	DN	25	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA32961	DN	26	Arbor Resources Inc. - 100%.	07/08/1979	115014
YA47082	DN	10	Arbor Resources Inc. - 100%.	08/08/1979	115014

YA47083	DN	27	Arbor Resources Inc. - 100%.	08/08/1979	115014
YA47084	DN	28	Arbor Resources Inc. - 100%.	08/08/1979	115014
YA47085	DN	29	Arbor Resources Inc. - 100%.	08/08/1979	115014
YA47086	DN	30	Arbor Resources Inc. - 100%.	08/08/1979	115014
YA47087	DN	31	Arbor Resources Inc. - 100%.	08/08/1979	115014
YA47088	DN		Arbor Resources Inc. - 100%.	08/08/1979	115014
YA47089	ND		Arbor Resources Inc. - 100%.	08/08/1979	115014
YA47090	DN	1	Arbor Resources Inc. - 100%.	09/08/1979	115014
YA47091	DN	2	Arbor Resources Inc. - 100%.	09/08/1979	115014
YA47604	DN	32	Arbor Resources Inc. - 100%.	14/09/1979	115014
YA47605	DN	33	Arbor Resources Inc. - 100%.	14/09/1979	115014
YA47890	DN	3	Arbor Resources Inc. - 100%.	11/10/1979	115014
YA47891	DN	4	Arbor Resources Inc. - 100%.	11/10/1979	115014
YA47892	DN	5	Arbor Resources Inc. - 100%.	11/10/1979	115014
YA47893	DN	6	Arbor Resources Inc. - 100%.	11/10/1979	115014
YA47894	DN	7	Arbor Resources Inc. - 100%.	11/10/1979	115014
YA47895	DN	8	Arbor Resources Inc. - 100%.	11/10/1979	115014
YA47896	DN	9	Arbor Resources Inc. - 100%.	11/10/1979	115014
YA49724	ND	1	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49725	ND	2	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49726	ND	3	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49727	ND	4	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49728	ND	5	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49729	ND	6	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49730	ND	7	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49731	ND	8	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49732	ND	9	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49733	ND	10	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49734	ND	11	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49735	ND	12	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49736	ND	13	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49737	ND	14	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49738	ND	15	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49739	ND	16	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49740	ND	17	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49741	ND	18	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49742	ND	19	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49743	ND	20	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49744	ND	21	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA49745	ND	22	Arbor Resources Inc. - 100%.	16/05/1980	115014
YA55250	DE	1	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55251	DE	2	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55252	DE	3	Arbor Resources Inc. - 100%.	24/04/1981	115014

YA55253	DE	4	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55254	DE	5	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55255	DE	6	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55256	DE	7	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55257	DE	8	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55258	DE	9	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55259	DE	10	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55260	DE	11	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55261	DE	12	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55262	DE	13	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55263	DE	14	Arbor Resources Inc. - 100%.	24/04/1981	115014
YA55285	VI	1	Arbor Resources Inc. - 100%.	22/05/1981	115014
YA55286	VI	2	Arbor Resources Inc. - 100%.	22/05/1981	115014
YA55287	VI	3	Arbor Resources Inc. - 100%.	22/05/1981	115014
YA55288	VI	4	Arbor Resources Inc. - 100%.	22/05/1981	115014
YA55295	VI	11	Arbor Resources Inc. - 100%.	22/05/1981	115014
YB38769	UELD	2	Arbor Resources Inc. - 100%.	12/09/1990	115014
YB38768	UELD	1	Arbor Resources Inc. - 100%.	12/09/1990	115014
YB17193	Rado	187	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17192	Rado	186	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17190	Rado	183	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17189	Rado	182	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17188	Rado	181	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17187	Rado	180	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17186	Rado	179	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17069	Rado	58	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17068	Rado	57	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17067	Rado	56	Arbor Resources Inc. - 100%.	17/06/1988	115014
YB17066	Rado	55	Arbor Resources Inc. - 100%.	17/06/1988	115014
YA55296	VI	12	Arbor Resources Inc. - 100%.	22/05/1981	115014
YA64216	RJ	1	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64217	RJ	2	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64218	RJ	3	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64219	RJ	4	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64220	RJ	5	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64221	RJ	6	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64222	RJ	7	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64223	RJ	8	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64224	RJ	9	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64225	RJ	10	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64226	RJ	11	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64227	RJ	12	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64228	RJ	13	Arbor Resources Inc. - 100%.	21/07/1981	115014

YA64229	RJ	14	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64230	RJ	15	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64231	RJ	16	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64232	RJ	17	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64233	RJ	18	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64234	RJ	19	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64235	RJ	20	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64236	RJ	21	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64237	RJ	22	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64238	RJ	23	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64239	RJ	24	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64240	RJ	25	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64241	RJ	26	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64242	RJ	27	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64243	RJ	28	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64244	RJ	29	Arbor Resources Inc. - 100%.	21/07/1981	115014
YA64245	RJ	30	Arbor Resources Inc. - 100%.	21/07/1981	115014
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YA79257	Syndicate	60	Arbor Resources Inc. - 100%.	16/09/1983	115014
YA79258	Syndicate	61	Arbor Resources Inc. - 100%.	16/09/1983	115014
YA79259	Syndicate	62	Arbor Resources Inc. - 100%.	16/09/1983	115014
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YA84210	Rex	28	Arbor Resources Inc. - 100%.	10/07/1984	115014



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YC75504	LLIB	5	Klondike Star Mineral Corporation - 100%.	16/07/2008	115014
YC75505	LLIB	6	Klondike Star Mineral Corporation - 100%.	16/07/2008	115014

**Lone Star Property Crown Granted Mineral Claims**

<b>Claim Name</b>	<b>Lot No.</b>	<b>Acres</b>	<b>Group</b>	<b>Plan No.</b>	<b>Year of Survey</b>	<b>Dominion Land Surveyor</b>
Yankee Girl	105	47.18	1052	8938	1901	Edwards, G.
Esther Edna	106	42.02	1052	8939	1901	Edwards, G.
New Bonanza	408	43.2	1052	10565	1909	Barwell, C.S.W.
Niobe	409	5.5	1052	10565	1909	Barwell, C.S.W.
Lone Star	410	41.2	1052	10565	1909	Barwell, C.S.W.
Zulu Chief	411	33.4	1052	10565	1909	Barwell, C.S.W.
Victoria	86		1052	6429	1901	Barwell, C.S.W.
Porphyry Lode	104	41.72	1052	8939	1901	Edwards, G.
Swastika	533		1052	22086	1937	Dickson, H.G.
Udas	534		1052	22086	1937	Dickson, H.G.
Cato	535		1052	22086	1937	Dickson, H.G.
Thistle	536		1052	22086	1937	Dickson, H.G.
New Bonanza #2	424	51.5	1052	10595	1909	Gibbon, J.
Argyle	223	43.35	1052	6575	1902	Fawcett, A.

Notes:

These claims have been legally surveyed ca. 1901-1937

The grants are registered in the name of Arbor Resources.

The Argyle claim is separate from the others - it lies at the junction of Adams Gulch and Bonanza creek & is overlain by Class A land claims

## AGREEMENTS

Klondike Gold Corp. originally held 100% interest in the Lone Star claims and crown grants. Under an earn-in agreement Klondike Star Mineral Corp. carried out the 2005-2008 exploration and earned a 55% beneficial interest. The two companies have agreed to combine their interests and collectively grant an option to Lonestar Gold Inc., who commenced exploration work on the property in September 2011.

Lonestar Gold Inc. is the operator of the project. Lonestar earns a 50% property interest by spending \$2,750,000 on work commitments over 2 years and issuing \$2,750,000 worth of its shares to the Optionor. The price of the shares issued is deemed to be the same price as the shares that are issued to finance the work commitment. After the 50% interest has been earned Lonestar Gold Inc. may continue to exercise the rest of the option and acquire up to 100%, or it may call a joint venture with Klondike Gold Corp. or Klondike Star Mineral Corp. Lonestar will remain the operator.

## PERMITS IN PLACE

A No. 3 Land Use Permit is in place to cover exploration activity and a water licence is in place to cover the use of creek water to supply the bulk test mill.

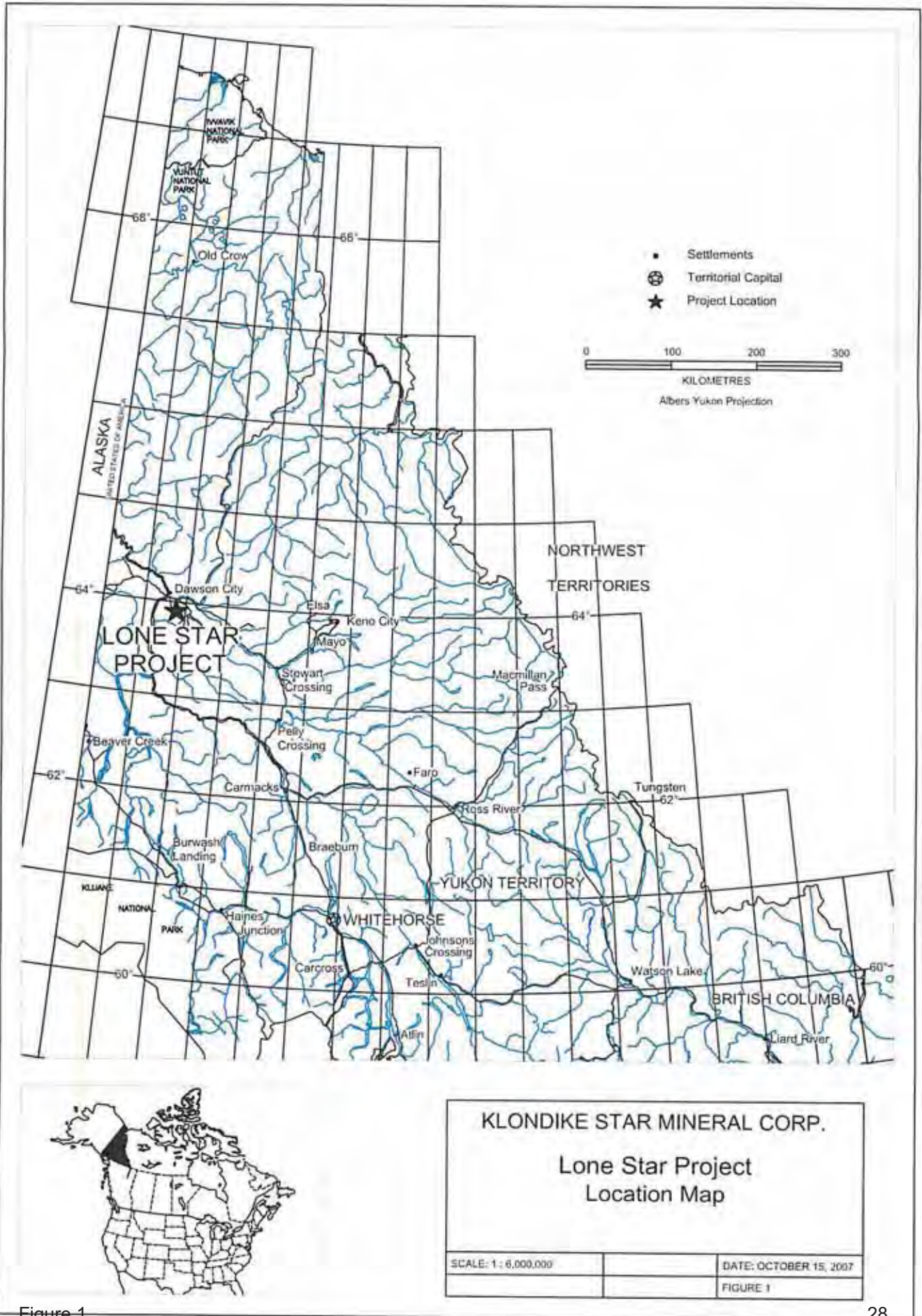
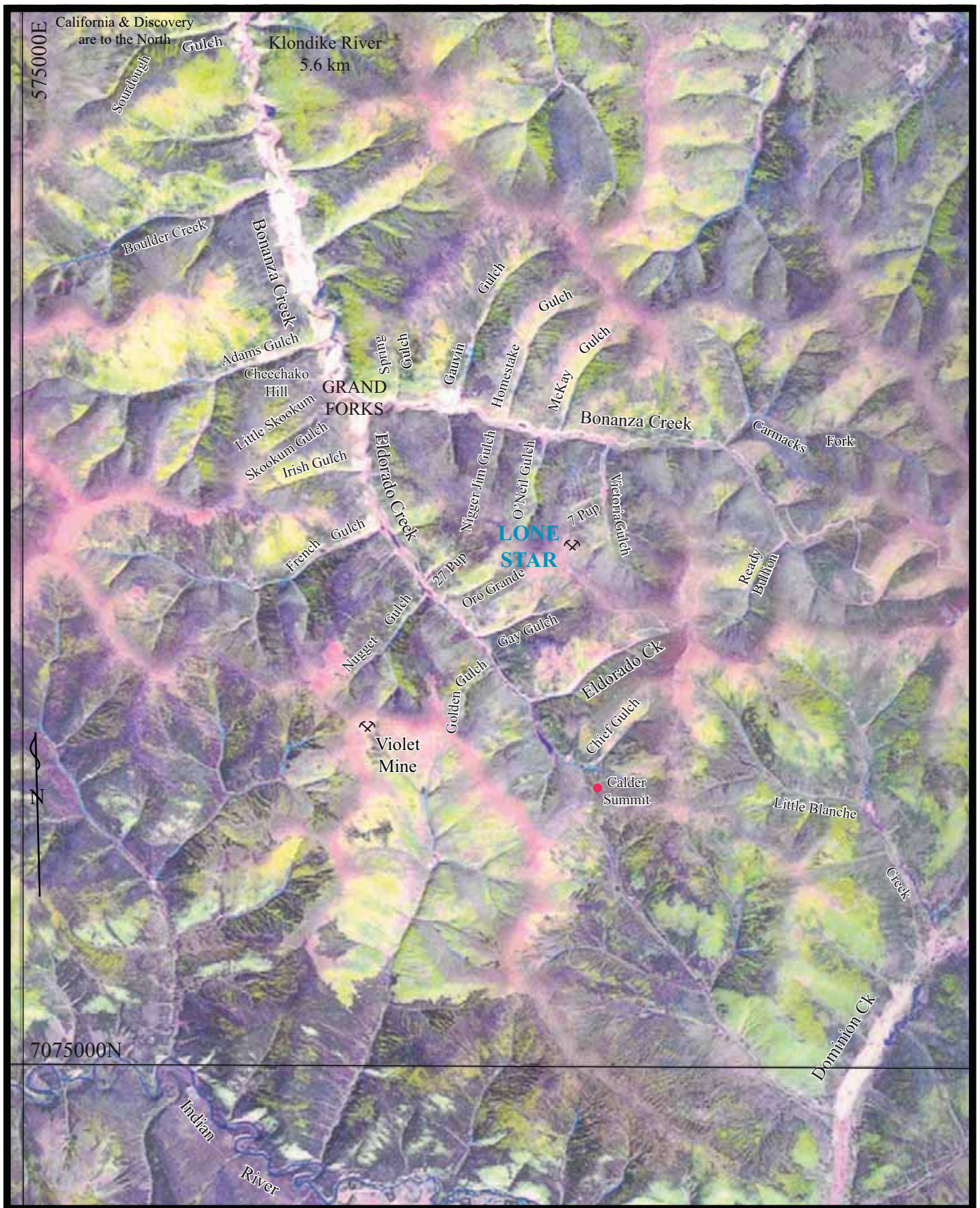
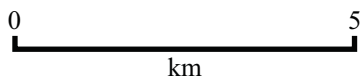


Figure 1





SATELLITE FALSE COLOUR IMAGE OF THE KLONDIKE GOLDFIELD  
 SHOWING GEOGRAPHICAL NAMES USED IN THIS REPORT



## **5. ACCESSIBILITY, CLIMATE, INFRASTRUCTURE AND PHYSIOGRAPHY**

The Klondike region consists of rugged topography of rounded hills and V-section valleys since this region was not recently glaciated (Nelson and Jackson, 2003). The hills have therefore a more subdued profile than the eastern Yukon, with cliffs being only prominent along the Yukon River valley. Weathering of the region has had a lengthy history, resulting in few natural fresh rock exposures and weathering profiles that may reach 10m depth.

Dawson City is on the Yukon River at 1050' (320m) elevation and the highest peak on the claim block, Eldorado Dome is at 1175m. The immediate environs of the claims have been historically denuded of large timber by cutting either to supply mines and fuel boilers or by forest fires and is now covered by regrowth of spruce, poplar, birch and alder. Only the very highest ridges are covered by dwarf willow & birch ("buckbrush").

The Klondike Gold Fields have been the target of prospectors and placer gold miners since 1896. The region therefore, is very accessible by road and trail. Dawson City is approximately 480 km from Whitehorse along the Klondike Highway which is now a completely sealed two-lane road. A 5000'x100' gravel surface, lighted Yukon Government airfield at 1214' (370m) elevation serves Dawson. A gravel airstrip at 2100' (640m) elevation suitable for light STOL aircraft with approximately 800' useable exists on the claim block at Eldorado Creek. Dawson is served by a scheduled service of twin-engined aircraft from Whitehorse and by highway there are regular freight services. Dawson City offers normal town facilities such as hotels, restaurants, grocery, clothing and hardware stores, garage and engineering supplies and has two bulk fuel depots.

The major valleys (Bonanza and Hunker Creeks) have summer maintained graded gravel roads linking with the Klondike Highway. Eldorado Creek has a gravel mining road (approximately 26 km to the airstrip from Dawson) and many ridges are traversed by four wheel drive trails. Access roads to Quartz Creek and the Indian River or Sulphur Creek to Granville are mostly maintained by the placer miners and their condition varies according to the weather.

The climate is sub-arctic, with a comparatively low annual precipitation. The workable summer season extends from late May until mid October, by which time nightly temperatures are below freezing and there are a few centimetres of snow remaining on the ground. Winter temperatures may drop to at least  $-40^{\circ}\text{C}$  for up to six weeks in January and February, although during the past seven years there have been generally more milder winters. Summer rainfall is highly variable and unpredictable, with some years being sufficiently dry to cause water supply problems for placer mining operations. Water supply for camp is available from an excellent spring 1 km higher up the valley than the old Klondike Star camp site.



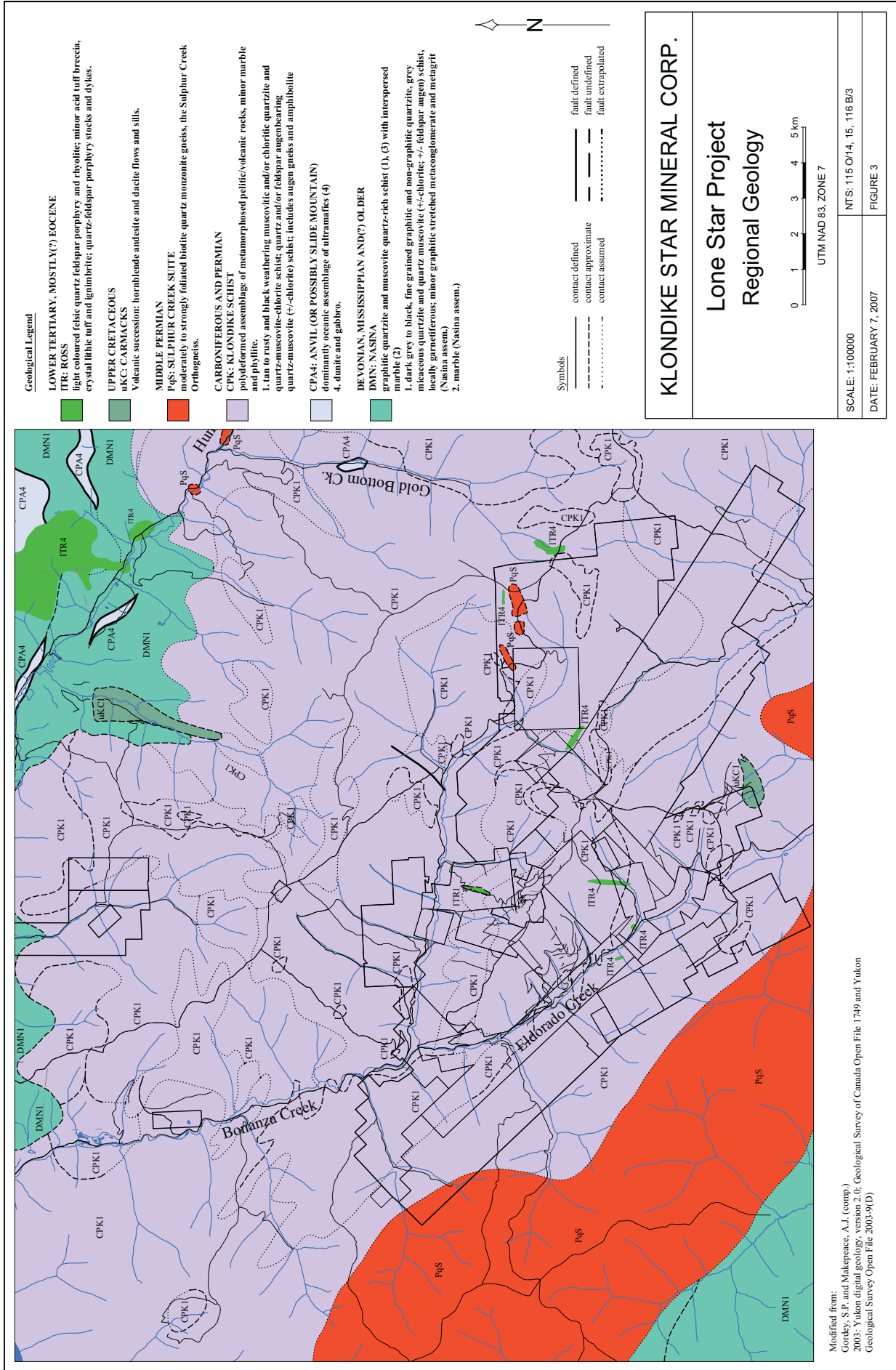


Figure 4

Modified from:  
 Gordon, S.P. and Malenczek, A.J. (comp)  
 2003. Yukon digital geology - version 2.0. Geological Survey of Canada Open File 1749 and Yukon  
 Geological Survey Open File 2003-5(D)



Figure 5. The Boulder Lode opencut ca. 1912

## 6. HISTORY OF THE QUARTZ CLAIMS

The Klondike region has been prospected since the discovery of gold on Bonanza Creek in 1896 and the subsequent gold rush. Immediately after prospecting and staking of the placer claims on Bonanza and Eldorado Creeks the search for a hard-rock source began. Many small gold showings were investigated by the excavation of pits and trenches with shallow shafts sunk or short adits driven on the notable prospects. Gold in quartz veins has been the traditional target for the 'pick-and-shovel' prospecting efforts and historically no effort to distinguish barren quartz from auriferous rock was made, so many foliaform (D<sub>2</sub>) veins were investigated by sinking substantial pits. Any prospects discovered by hand methods would contain an appreciable content of their metal as free gold that could be liberated by simple crushing and panning. The notable properties that were discovered around the turn of the 20th. century were the Lone Star with the Pioneer and Parnell showings on the same trend to the SW situated on the ridge between Eldorado and Bonanza Creeks (Minfile 072, 150 & 147), the Violet vein to the west of Eldorado Creek (Minfile 146) and the Mitchell and Sheba Veins on King Solomon Dome (Minfile 068).

The Lone Star property was first staked in 1897 and the adjacent Victoria and Pioneer prospects in 1900; the Violet Prospect was first staked in 1901. The Lone Star (Boulder Lode) and Violet properties are the two hard-rock prospects that have received substantial underground development, but only the Boulder Lode has actually produced more than a few tonnes of ore. Various attempts at underground development took place between 1911 and 1948. The property then languished until a renewal of interest in 1960.

### PREVIOUS WORK

The principal current Klondike Gold / Klondike Star property, now optioned by Lonestar Inc. is a block of claims that covers the region between Bonanza and Eldorado Creeks, much of the ridge on the SW side of Eldorado, and extends SE across Canyon Creek to the east border of map sheet 1150-14. This property covers the abovementioned historical gold mines and prospects as well more recently discovered

showings such as the Hilchey (Minfile 076).

Although this region has been intermittently prospected for a hundred years, with examinations by government geologists over 90 of these, there was until recently no consensus regarding the geological setting of the hard-rock gold mineralization. Exploration had been largely a matter of following (the historical approach) either visible gold or assay values from excavations in loosely defined 'zones', without a clear understanding of structural or lithologic controls on the mineralization. The work by Klondike Gold Corp. and Klondike Star Corp. between 2004 and 2007 has defined the structural setting for the hard-rock mineralization.

### The Lone Star (Boulder Lode)

The prospect was first staked in 1897 by Messrs. *Chute, Corthay and Stewart*. They prospected the discordant quartz body known as the Corthay vein by shaft sinking and drifting. The larger, more disseminated mineralization of the Boulder Lode was developed subsequent to 1909 by the *Lone Star Company*, who mined the opencut and connected it to a 225m adit by means of two ore passes. An amalgamation plate 4-head stamp mill with Wilfley table was built on Victoria Gulch and a gravity aerial tramway connected this to the mine. By 1914 some 7650 tons of rock had been mined and milled (calculated to represent approximately a head grade of 0.202 oz/ton: Cathro, 1979). Engineering problems and the First World War lead to closure. By 1931 the reorganized company had driven a new adit in more stable ground and opened up further underground exposures, but production did not resume: timing of this effort was obviously inappropriate. It is obvious that conventional chip sampling of surface and underground rock exposures has been repeatedly unable to duplicate the grades of gold obtained during the early milling. This is not to suggest any 'salting', rather the sporadic nature of gold grains in the ore, the 'nugget-effect'. The first attempt at grade estimation was by the government (MacLean, 1914). Re-sampling by Farrell in 1935 encountered similar problems and a combined surface-underground sampling program by the *Yukon Consolidated Gold Corp.* in 1946-7 also lead to uncertain estimates. The probable underestimation of ore grade in small-sized samples has likely been a major factor in the

property having lain dormant until 1960.

In 1960 *Klondike Lode Gold Mines* acquired the property and carried out two years of prospecting for extensions of the mineralization by bulldozing five contour trenches of 20,000 ft. total, partly along old placer flumes, and sluicing samples of approximately 3 ft<sup>3</sup> volume (i.e., 85 litres or four to five bucketsful). Gold concentrated was expressed qualitatively as number of colours. Colluvial gold was found in the 7 Pup-O'Neil area. In addition to trenching the Bonanza side of the ridge alongside the Lone Star, sampling was also performed by engineer Gordon Hilchey east of Eldorado at French Gulch (one 2100 ft.) and between Gay Gulch and Oro Grande (five smaller trenches). This other work led to the discovery of several possible sources in the latter area, including the Hilchey prospect.

Archer Cathro and Associates Ltd. re-evaluated the Lone Star for *Dawson Eldorado Gold Explorations Ltd.* between 1979 and 1983. A resistivity survey and geological mapping were performed in order to form a model for structure. Immediately subsequent to that work mapping by Dr. J.K. Mortensen proposed a model for the Boulder Lode to contain a part of the gold in vertical quartz 'stringers' that are discordant to the attitude of the dominant foliation of the host schist; the lode and disseminated mineralization being in the hinge zone of a third-generation (F<sub>3</sub>) antiformal fold.

*The Dawson Syndicate (1983)* carried out more systematic prospecting over the claim block that covered much of the Klondike from upper Adams Gulch to Hunker Creek and from Grand Forks to the Klondike River. Five grids were laid out for soil sampling and geophysics, four on the south side of the Klondike R. within 3km of its valley and the fourth (Penibe claims) south of Hunker on the ridge to the west of Last Chance Creek. Induced polarization surveys detected no response in the Oro Grande to Gay Gulch grids, but a very obvious response from the 27 Pup area (this likely being due to the outcropping graphitic phyllite unit). At the French Gulch / Eldorado junction a split anomaly was defined and at Big Skookum a resistivity anomaly noted. Detailed surveying of the Lone Star grid produced some very distinct response. Twenty seven diamond drill holes were used to test anomalies over the whole region. Seven of these on the west side of Hunker Creek (where distinct magnetic anomalies were noted)

encountered sheared graphitic schist and serpentine-peridotite bodies that presumably mark ophiolites obducted along the major thrust fault zones. Thirteen holes drilled in the Bonanza drainage basin tested geologically inferred fault zones: by California Gulch holes EAN 1-3 cut graphitic Nasina schists interlayered with muscovite schist. Magnetized diabase dykes explain the magnetic response. Although carbonate-mariposite veining indicated some hydrothermal activity no significant gold was reported, merely anomalous (22ppm) silver. At the junction of Boulder Creek and Bonanza (hole K1) graphitic schists were again found with mariposite and carbonate alteration. Fracturing with only high arsenic content was noted. At the Adams Gulch-Bonanza junction holes K2-3 investigated apparent sericite alteration seen on the placer ground of Adams Creek and Cheechako Hill. Muscovite schist with no anomalous geochemistry was encountered and the sericite was then interpreted to be a weathering product. A presumed fault zone at Little Skookum Gulch intersected by hole K-4 again only found high As (725 ppm). Hole K5 at Big Skookum Gulch tested magnetic and I.P. anomalies and found a magnetite-bearing diabase dyke but no significant assays. On the east side of Bonanza holes KDR 1-3 encountered graphitic pyritic schist and diabase dykes again and in Bonanza Creek hole KDR 4 found brecciated graphitic schist.

Van Angeren (1986) summarized the 1985 regional exploration work and the geology of the Lone Star and Violet properties. He concluded that the known placer deposits in this area were derived mostly from the known hard-rock mineralization, a conclusion that has been supported by recent research on placer gold composition and morphology (Mortensen et. al., 1986, Chapman et al., 2010). Three types of quartz vein are recognized over the Klondike district: lenticular conformable quartz that is ubiquitous throughout the Klondike Schist and is typically barren of gold; veins that are discordant to foliation in the schist typically carry pyrite and very occasionally galena, chalcopyrite or tetrahedrite in their selvages: these are auriferous; large, metre-scale width barite-bearing veins have fairly planar geometry. The latter type can carry sulphides and sulphosalts and display high but erratic gold grades, such as the Violet vein and perhaps the Corthay vein at Lone Star. At Lone Star much of the gold present is contained in the discordant quartz veinlets that form a stockwork-like zone, but presence of gold in

surrounding pyritic schist is likely (in microfractures). The Boulder Lode was exposed in the open-cut that was mined at 20° to the strike of foliation in the country rock (designated S<sub>2</sub> in the present work), but which does not follow any obvious hanging- or footwall, the NW end being the only portion ending in a possible NW striking fault. Van Angeren comments on results of conventional soil geochemistry obtained from 1981-84 (original reports were not available at the time of this writing). Well-defined gold anomalies were obtained from around the Lone Star, Eldorado Dome and Hilchey showings and as discontinuous 'spot' anomalies from O'Neil Gulch to lower Glacier Gulch (source unknown in 1985, but then postulated to be a NW trending fault zone).

#### Regional Exploration, Including the Lone Star Ridge Subsequent To 1986.

After 1985 the exploration of the area was conducted on a larger scale to cover much of the region from the Klondike River to the Lone Star area, as well as continuing geophysics, geochemistry and drilling in the immediate Lone Star area.

*Arbor Resources Inc.* optioned the Klondike property in 1986 and continued exploration of both the large claim block and the Lone Star Crown grants (Grunenberg and Gonzales, 1987). At French Gulch, near the junction with Eldorado, 10 diamond drill holes were used to investigate I.P. and V.L.F.E.M. anomalies close to zones of quartz veins exposed in placer workings. The shear zones intersected did not yield any anomalous geochemistry and pyritic chlorite schists were barren of gold. The geophysical anomalies correlated with graphitic layers and linear magnetic anomalies with diabase dykes that are reverse polarized and hence give very sharp negative anomalies. Five zones of from 1.5 to 8 ft. (0.46-2.4m) thickness were intersected giving gold grades of 0.01-0.20 oz/t, each in quartz veins. Seven holes were drilled along Eldorado Creek between Golden Gulch and Little Eldorado Gulch to test shear zones indicated by geophysics and five holes were abandoned due to 'broken ground'. Hole EL3 intersected quartz muscovite schist, quartzite and epidote-bearing muscovite schist and a shear zone beneath pyritic schist exposed in placer workings without finding gold above 0.009 oz/t.

At Lone Star twelve diamond drill holes were completed, numbers LS1-2 to

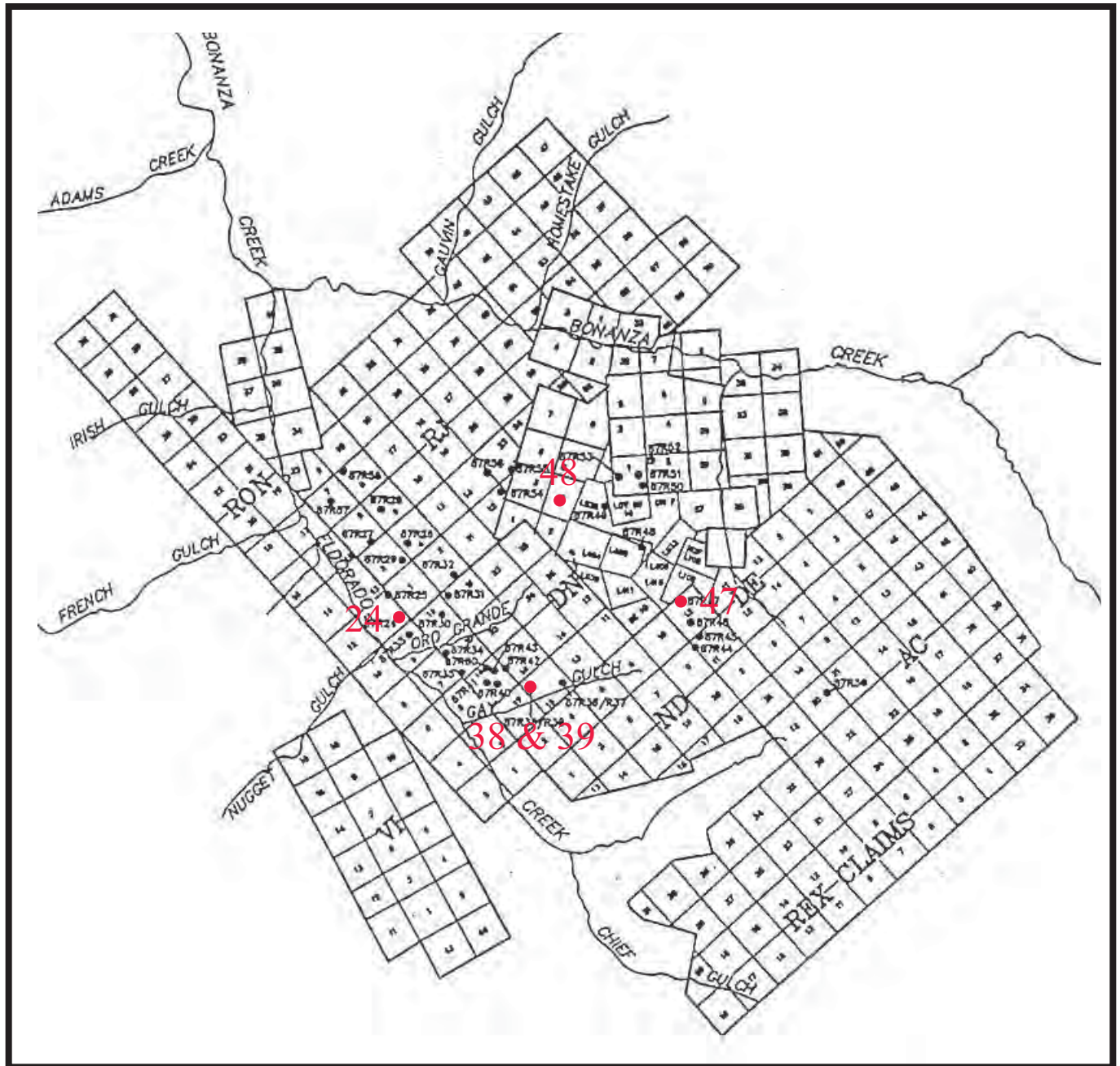
penetrate beneath the Boulder Lode opencut and the rest to test soil geochemistry or I.P. chargeability/resistivity anomalies. DDHs 3 and 11 proved the most promising, with many intersections of  $>0.05$  oz/t and some smaller intervals (2.5 ft.) up to 0.345 oz/t. Also 23 rotary drill holes were completed during the '86-'87 winter, mostly between Oro Grande and Gay Gulch. Several 5-10 ft. zones of 0.013-0.23 oz/t were intersected. The interpretation made of Lone Star mineralization was of two shallow NNE-dipping Au-bearing zones that project beneath the Boulder opencut. This interpretation was made by joining assay intervals between drill holes and has no geological (lithological) control.

In 1987 (Grunenberg and Gonzales, 1988) prospecting of the outlying areas continued with geological mapping of Eldorado Creek and the Lone Star ridge at 1:10,000 scale. A unit of 'carbonaceous quartz schist' has been interpreted to underlie Eldorado Creek, with its widest extent at French Gulch. The unit is shown as continuing to the SE on the NE side of Eldorado, being about 400 m uphill at Gay Gulch. Work on the Buckland Zone aimed to verify assay values obtained from Rotary hole 87R-21 by diamond drilling. Two holes were lost, but after pre-collaring with a rotary rig DDH 12 reached the target zone and obtained grades of from 0.01-0.17 oz/t. A 0.8m thick layer of Au-bearing rock interpreted to be rhyolitic tuff was intersected and a 6.7m interval assayed 0.133 oz/t Fig. 6. Since in this particular locality there was a correlation between Au and As, Grunenberg and Gonzales (1988) p. 33, interpreted this mineralization to be volcanogenic. Above Gay Gulch DDHs 10 and 11 encountered short intervals of good grade in muscovite schist containing quartz stringers (presumably a discordant vein system). 37 rotary holes were drilled in the upper part of 27 Pup and towards Gay Gulch, in the O'Neil-Lone Star-Victoria area. Numerous significant gold assays were obtained, particularly in 87R- 24, 38, 39 in the Gay Gulch-Oro Grande area (Fig. 7). Soil geochemistry detected an extensive Au anomaly between Oro Grande and Gay Gulch. On the Lone Star ridge Rotary holes 87R- 47 and 48 returned significant intersections (the SE projection of the Boulder zone). VLFEM measurements traced an inphase anomaly for 3 km across the head of 7 Pup to Victoria Gulch. On a separate grid on the NE side of the Boulder Lode Crown grants VLFEM also defined an anomalous zone that coincided with airborne anomalies (possibly a graphitic unit).

The 1988 program (Grunenberg, 1989) extended the Lone Star grid to the SE and





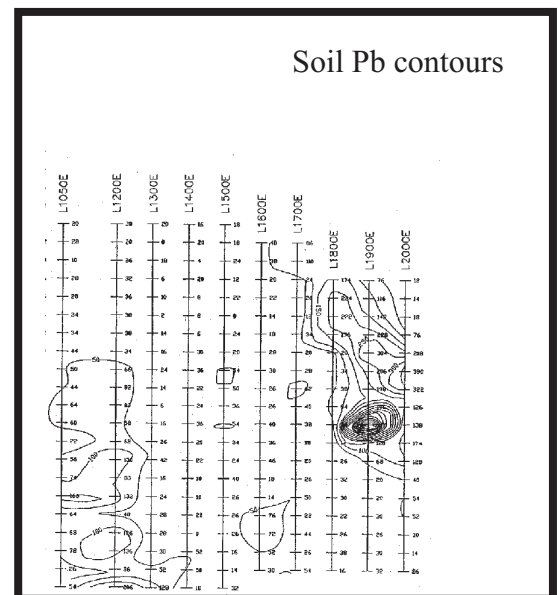
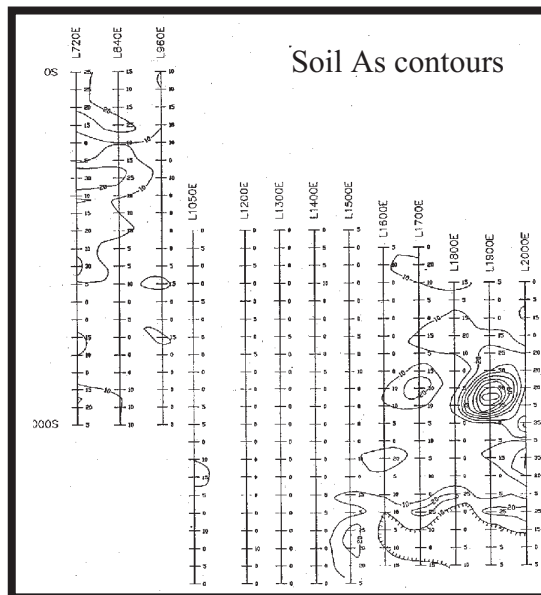
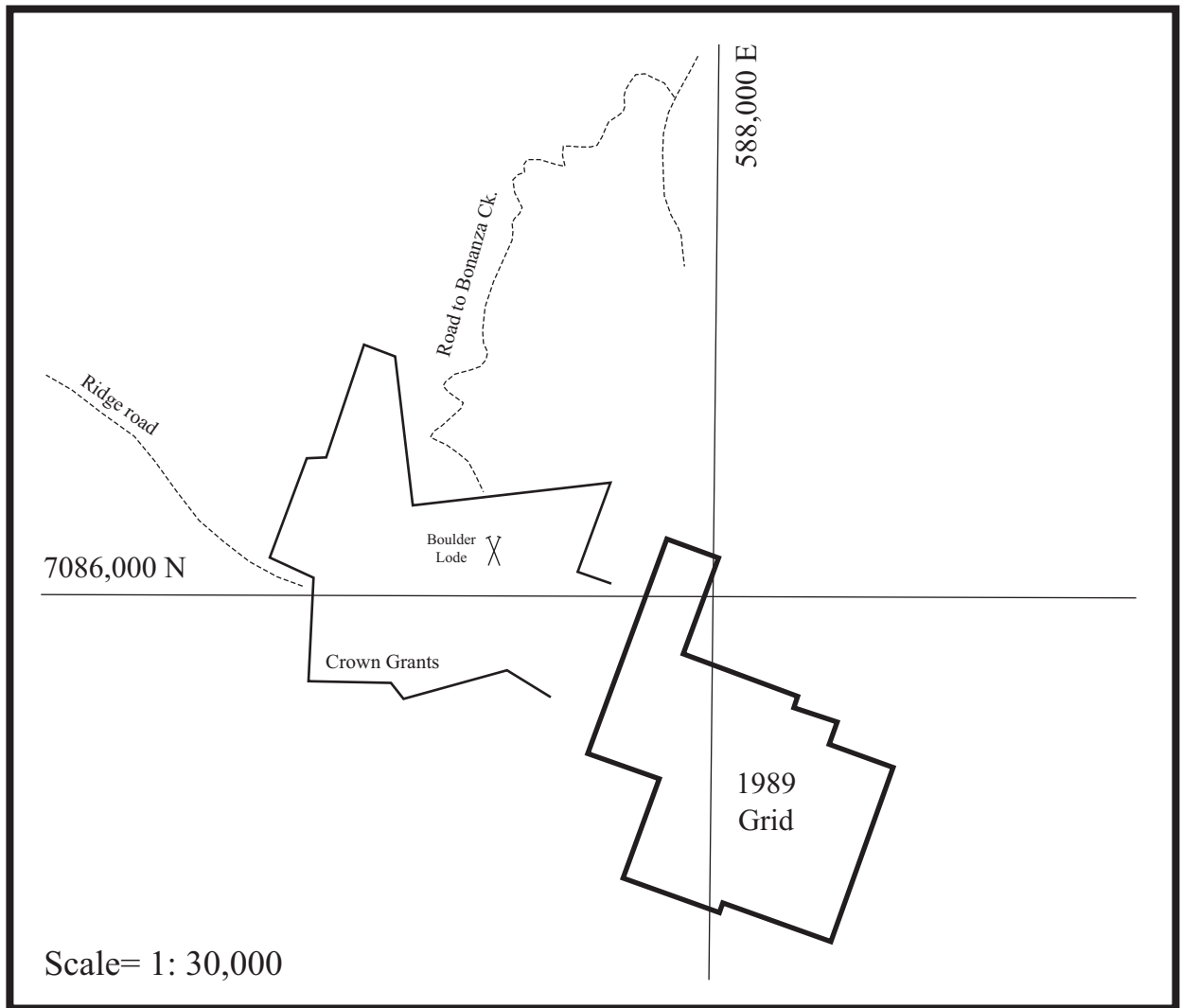


MAP OF ROTARY DRILL HOLES FROM GRUNENBERG (1987)  
HIGHLIGHTING THOSE OF INTEREST

Figure 7

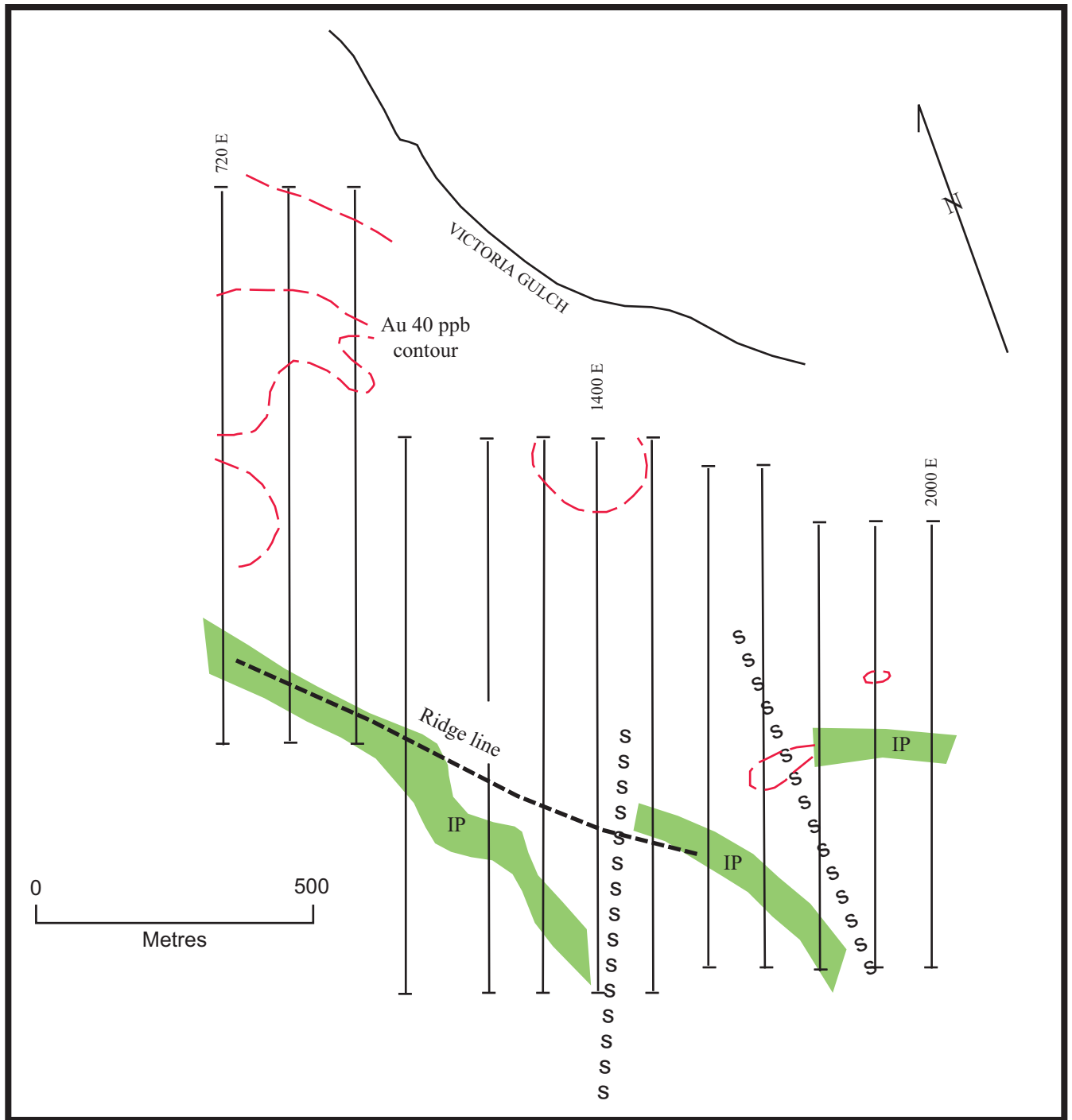
detected a base metal (especially Pb and As) anomaly at its eastern edge (Fig. 8). Ground geophysics (I.P. and magnetic) over the larger claim block and Lone Star grids was employed. The abovementioned geochemical anomaly on the Lone Star grid is just downslope of a gold anomaly and coincides with the easternmost I.P. anomaly (it is just north of the ridge road). Trenching in this region is somewhat topographically above the anomalies if Grunenberg's maps can be trusted. His notes for trench 35 also indicate this: See Fig. 9. Analyses from trenches 31 and 32 did not find gold above detection limit. Trenching on the east side of Eldorado, from 27 Pup to the spur south of Gay Gulch did produce some significant assays (Trenches 11, 26, 6, 3 in progression to south). In the Lone Star area new trenches 88LS2, 88LS3, 88LS4, 88-17, and 88-36 yielded gold assays varying from 0.013 / 10m through 0.332 / 1m to 2.132 / 0.15m (Fig. 10).

The best summary of work up to and including the 1988 season is provided by Van Angeren (1989) for *Dawson Eldorado Mines Ltd.* Comments pertinent to the Boulder Lode in that report are that there were two mineralized zones recognized: to the SW of the opencut, "zone LS3-a" is 11m wide and interpreted to strike northwesterly and dip 50°NE and at the mouth of the opencut "zone LS3-b" is the historical lode and is separated from LS3-a by 19m of barren schist. In this report Van Angeren interprets the mineralized zones as being shear structures. He quotes assays from four channel samples across LS3a as averaging 0.155 oz/t / 11m. Upon re-assay a value of 0.046 oz/t was obtained and once the 'screen metallics' assay was added the grade was raised to 0.139 oz/t. This data is used to infer a considerable contribution of free gold to the grade. He also notes that several narrow (?) shear zones are mineralized. These are from 3 to 5m width and were exposed in the 1935 and 1947 trenches. An estimate of the overall grades is given as 0.03-0.055 oz/t for the softer clay-altered part of the lode (much of the opencut) and 0.224 oz/t for the siliceous part. Van Angeren's interpretation is that the lode is offset from 80-100m south at trench 87-17/88-02 and again after 88-04 (to be eventually intersected by trench 96-09). Bulk sampling of lode material followed by gravity concentration and cyanide leaching showed that significant amounts of free gold are present, but Van Angeren considers that the coarser fractions from the tests may have contained considerable amounts of sulphides and their contained gold, which would not have been liberated in the leach. He also considers that much of the "LSA" sample may



1989 GRID LOCATION RELATIVE TO THE BOULDER LODGE AND SOIL GEOCHEMICAL ANOMALIES AT THE PIONEER PROSPECT

Figure 8



COMPILATION OF I.P. ANOMALIES, INTERPRETED FAULTS AND SOIL GOLD ANOMALIES FOR THE LONE STAR-PIONEER AREA DATA FROM GRUNENBERG (1989)

Figure 9



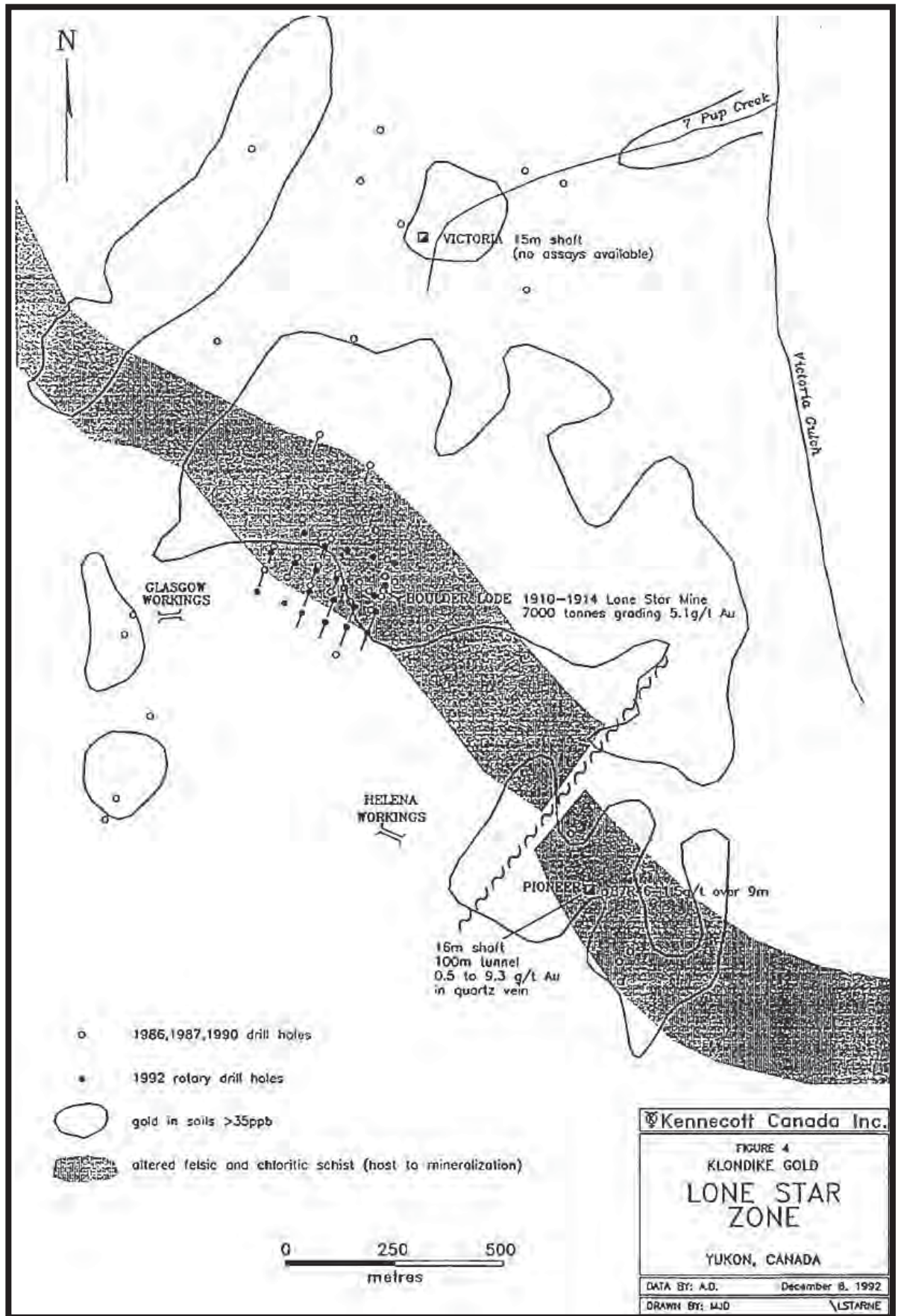
have contained wall-rocks, which were mineralized but of lower grade than the lode material. Although he presents no quantitative data for sulphide content, there does exist a potential problem with gold in sulphides.

In this later report Van Angeren describes the Boulder Lode as  $\leq 25$  metre wide siliceous body of  $\approx 0.1$  oz/t bulk grade within an alteration zone from 20-80m width and of grade  $\leq 0.04$  oz/t. Additional parallel narrower zones exist. On consideration of alteration mineralogy he concludes that the mineralization is of Tertiary age epithermal origin (but this is from visual identification. There was no X-ray diffraction data or Ar-Ar dating presented. This might be one topic for the future research).

*Arbor Resources* 1990 work (Tomlinson, 1991) carried out further I.P. surveys in seven localities (Lone Star, 7 Pup, McKay-O'Neil, Eldorado between Skookum and Gay Gulches, Eldorado north of Irish Gulch and French Gulch. The geophysical report was not available to T.L. However, Tomlinson notes that one of the more useful results was that on the Lone Star grid attempts to reach greater depth did detect a response and correlation was noted between chargeability highs, resistivity lows and the mineralized zones. 40 trenches were excavated and 45 reverse circulation rotary holes drilled, numbers 8-24 in the Lone Star area, each of which obtained some economic-grade intervals.

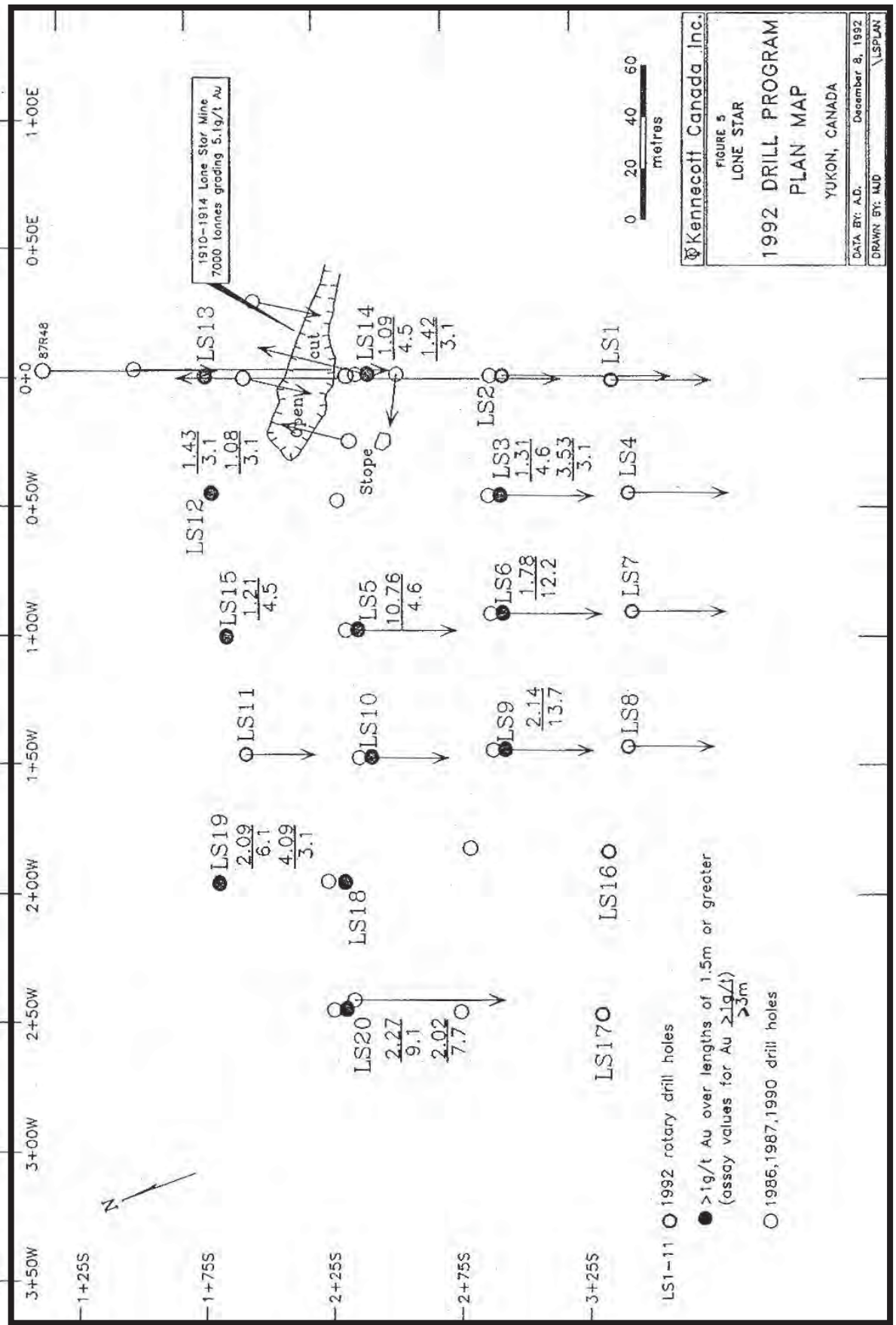
In 1992 *Kennecott* optioned the Lone Star property and continued the rotary percussion and reverse circulation drilling started by Arbor Resources. The Lone Star mineralization was extended out to 250m WNW of the Boulder opencut. Doyle (1993) considers that this is part of an alteration zone that trends NW from the Pioneer prospect (with R.H. fault offset) and which continues towards O'Neil gulch (Fig. 11). With the additional drill data the mineralized intervals no longer appear to be just one shallow-dipping horizon at the Boulder lode (Figs. 12 & 13). Significant gold grades were encountered 200 metres west (Fig. 14).

The 1993 program (Finlayson, 1994) was preceded by preparation of heavy mineral concentrates from cuttings of drill hole LS14. Assays of concentrates produced slightly lower values than the original 1992 drill cutting assays and free gold was not found in mineral concentrates from that hole. The Kennecott report concluded that coarse free gold was not present and, on the basis of gold content in pyrite, that two



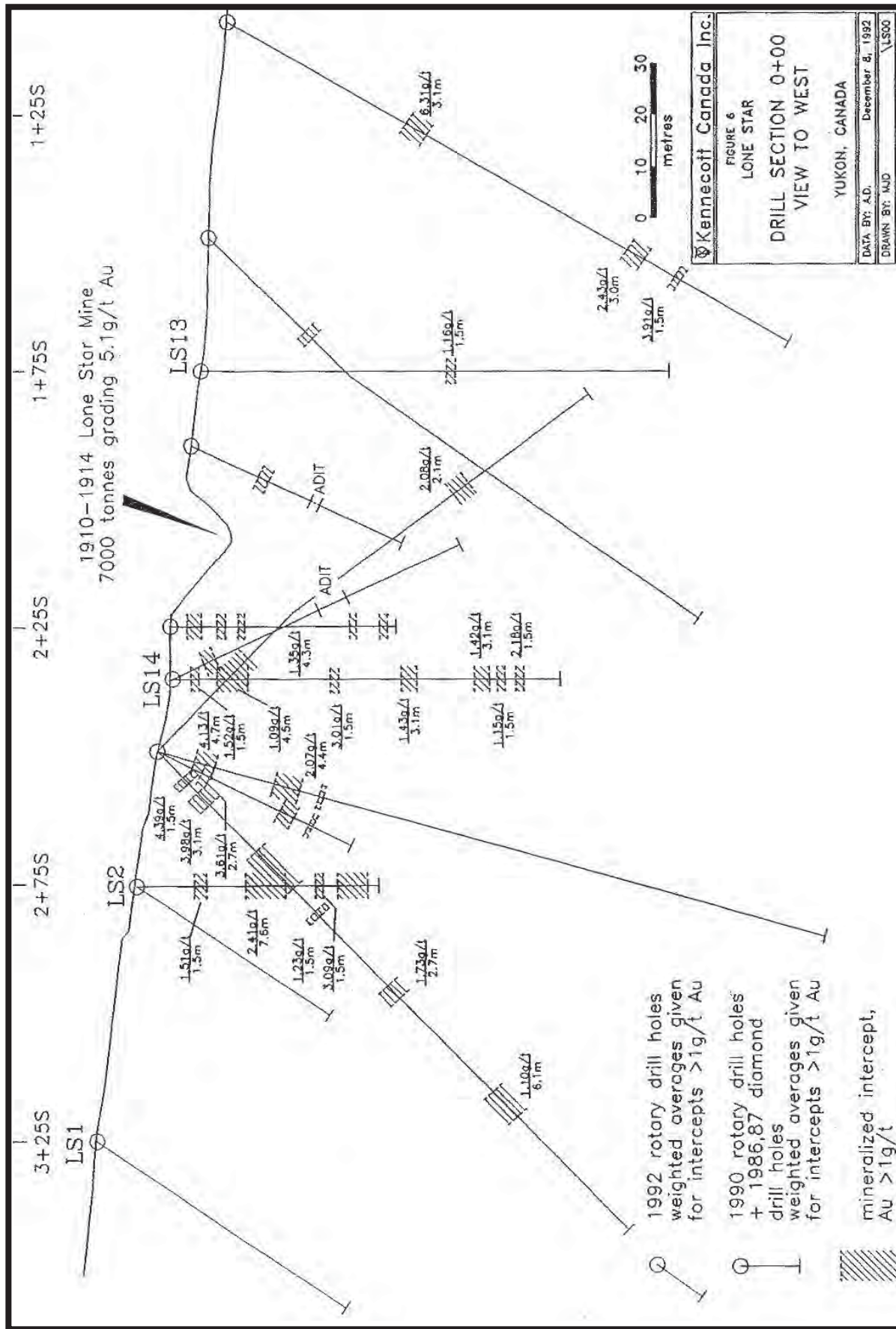
COPY OF MAP FROM DOYLE (1992) SHOWING INTERPRETATION OF MINERALIZED ZONE.





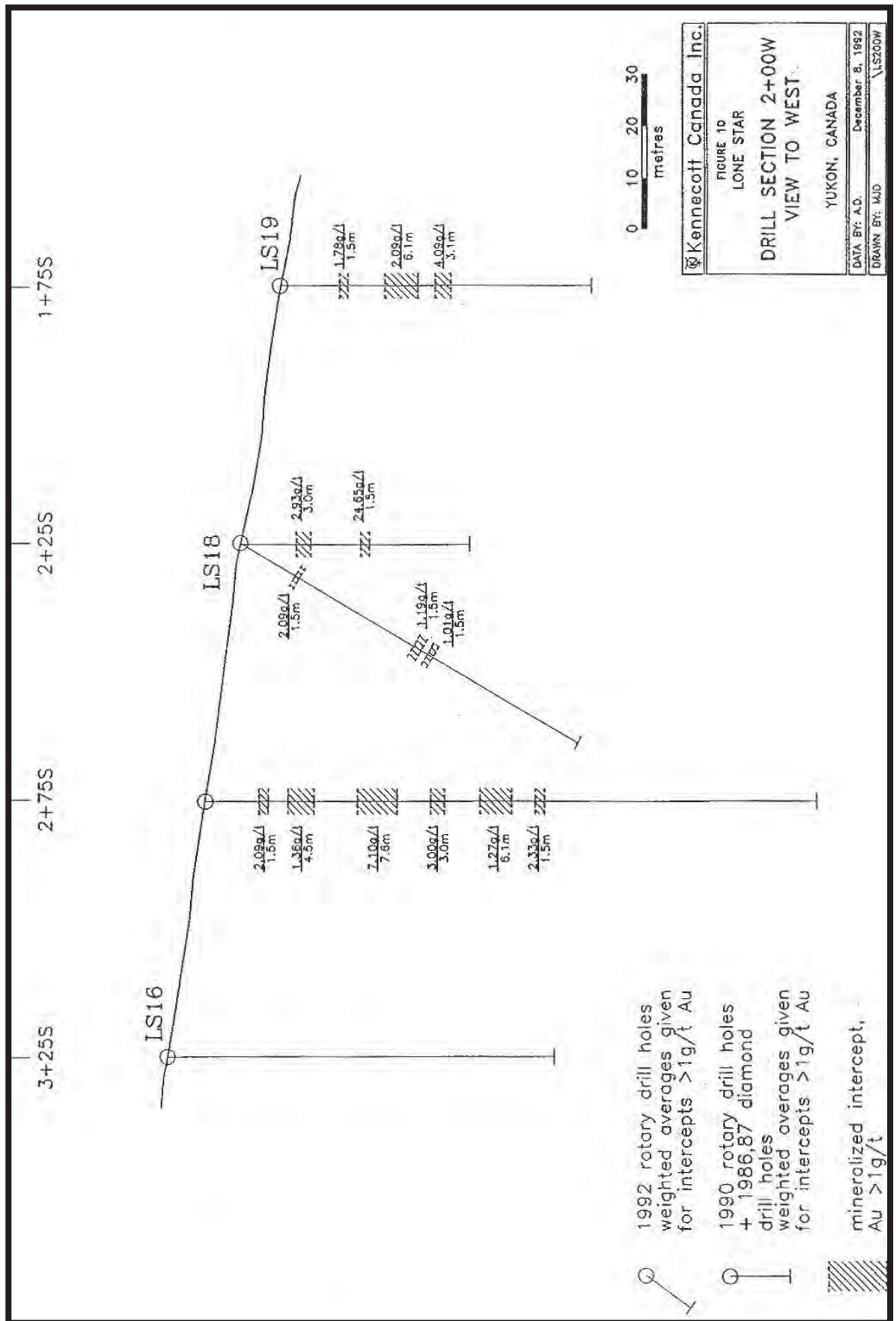
LONE STAR 1992 DRILLING FROM DOYLE (1993).

Figure 12



BOULDER LODGE DRILL SECTION FROM DOYLE (1993).

Figure 13



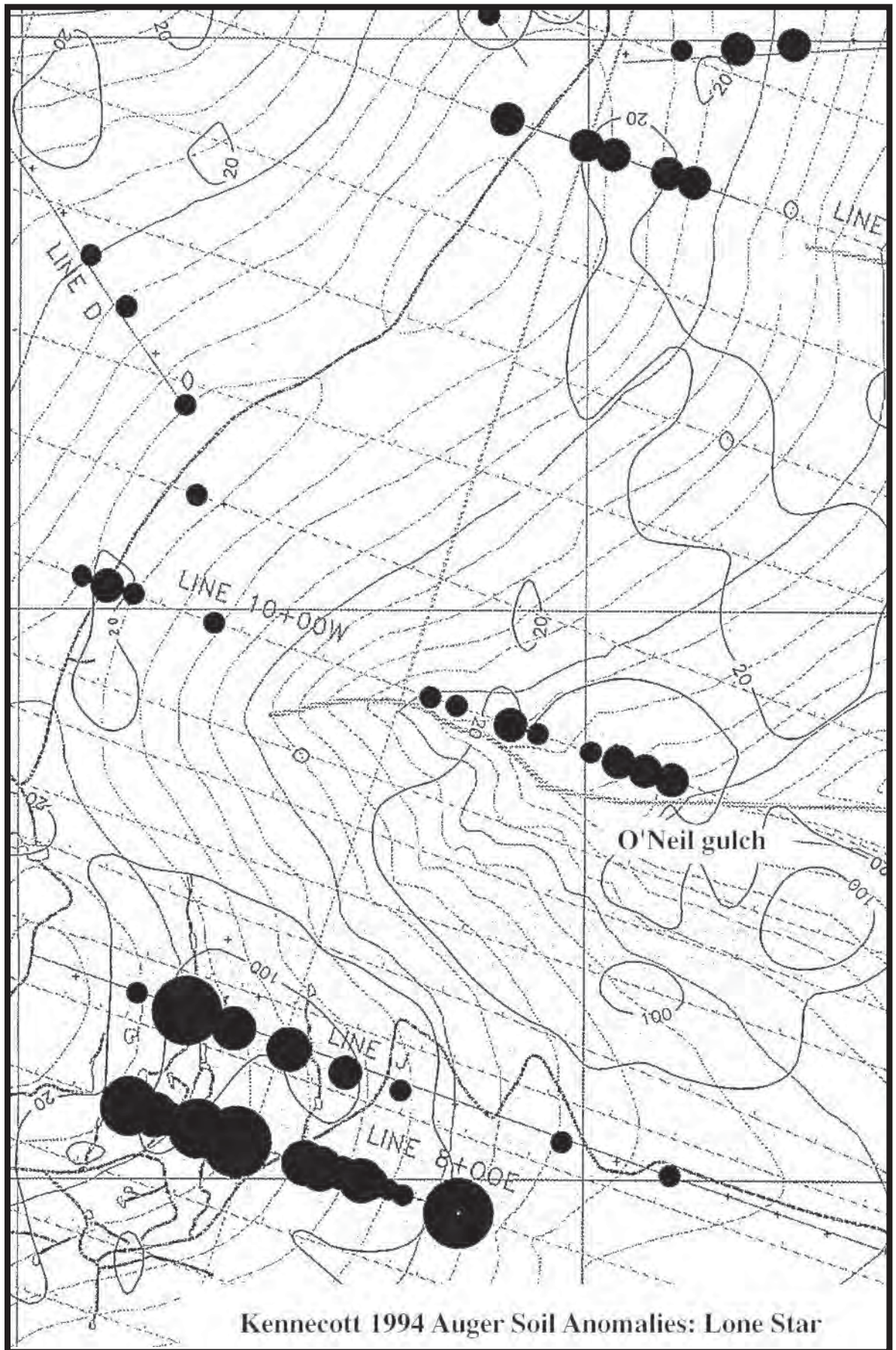
LONE STAR DRILL SECTION 200W FROM DOYLE (1993).

Figure 14

generations of sulphides exist in the Lone Star rocks: i.e., that gold mineralization was impressed upon existing pyritic schists. Haematite and magnetite are considered to have been formed by oxidation of pyrite during hydrothermal alteration. Also Finlayson fails to find any correlation between metamorphic quartz and gold grade; propylitic vein assemblages of quartz ± calcite ± epidote ± adularia ± chlorite ± haematite seem to be barren of sulphides or gold; neither do white saccharoidal calcite ± quartz veins containing galena and traces of blue chlorite ± sphalerite correlate with gold. Mineralization is seen as being of low-sulphidation, low sulphide epithermal or mesothermal origin. The 1993 drilling was largely undertaken to test the gold soil anomaly downslope of the mine workings that Arbor Resources' work defined and to investigate geophysical anomalies resulting from re-processing of earlier-obtained helicopter airborne data. Mineralization encountered in their drilling consisted of intersections of <10m of >1g/t (>0.029 oz/t) in Boulder Lode drillholes LS-1, 3, 4, 7, 8 and 9. In the Buckland zone holes 20-22 encountered 3 to 15m intersections of >1g/t.

Kennecott's 1994 program (Cranswick et al., 1995a) aimed at further evaluation of the entire property, especially the Buckland zone. Power-driven soil augers were used to obtain continuous sample lines spaced roughly at 1 kilometre intervals down the spurs from the ridge road to Eldorado Ck. and over the Lone Star area (Fig. 15). Significant Au anomalies up to 500 ppm were obtained from the spurs between 27 Pup and Oro Grande and over the NW side of Gay gulch valley and, also perhaps more significantly for present day exploration, directly above O'Neil gulch. The anomalous region over the Nugget zone was trenched (94-02). Assays of 2.35g/t / 12.0m and 26.5g/t / 2.0m were obtained. In addition low in Gay Gulch, trench 90GG-06 was re-cut and sampled, yielding individual assays of 3.71g/t / 2m; 3.01g/t / 2m; 1.25g/t / 2m; and 1.17g/t / 2m in discordant pyritic quartz veins.

In addition to the work on the Lone Star - Buckland zones regional work was carried out over the rest of the claim block (Cranswick et al., 1995b) in the search for intrusion-related gold (using a Fort Knox model). The re-processed helicopter-borne magnetic survey was used to infer the presence of a magnetite-type granitic intrusion at Sourdough Gulch, based upon magnetite-bearing porphyry dykes at 77 Pup and the



SOIL GOLD ANOMALIES IN THE LONE STAR-O'NEIL AREA FROM CRANSWICK (1995)

further anomalies at Discovery Pup (off Bonanza Creek). Weakly mineralized quartz muscovite schist was exposed by trenching of the hornfelsed aureole of the Sourdough pluton. Auger sampling found no significant gold at the other localities.

At the end of the season's work Kennecott decided that the mineralization that had been discovered was not sufficiently continuous to meet their criteria for a bulk tonnage target. The option on the property ended January 1995.

Work was continued on the property after Arbor Resources became *Klondike Gold Corp.* A study of the mineralogy and amenability to milling of bulk samples was performed by Newmont Exploration Ltd. as an evaluation of the property. Significant amounts of gold >100 mesh were found in their laboratory tests as well as their assays indicating considerably higher numbers than some of the original rotary drill cutting results. J.E. Tilsley and Associates (Hayden and Tilsley, 1997) carried out further surface sampling of the Lone Star during 1996 to investigate techniques to obtain representative assays. Again, considerable coarse gold was detected in their large-sized ( $\approx 30$ kg) samples. This size of sample, however, still did not give reproducible results.

The 1996 work consisted of new trenching plus re-sampling many of the exposures in the Lone Star, Pioneer, Parnell, Buckland, French Hill, Glacier and Oro Grande zones, together with a reinterpretation of the geology (Van Angeren, 1996). Van Angeren had by then rejected the shear zone model for mineralization that he originally proposed and which was prevalent during Kennecott's work. He interpreted the Boulder Lode as being a “--- foliated zone of alteration apparently constrained to a unique volcanosedimentary horizon. Boulder Lode is thought to represent metamorphosed ‘syngenetic’ or ‘paleo-epigenetic’ mineralization (such as gold exhalites or structurally-controlled, replacement or alteration zones).” He recognizes that the host lithology is polydeformed and hence difficult to correlate over any distance.

The Buckland zone in contrast is seen as a post-metamorphic, weakly altered, near vertical deformation zone that is discordant to the schists and which may also be of anastomosing geometry. Widths of from 4 to 8m are interpreted with grades from 0.04 to 0.19 oz/t found in previous work. The Oro Grande mineralization is seen to be cross-cutting mesothermal quartz veins that contain coarse gold. 27 Pup is seen as being a distinct stratigraphic (tuff-exhalative) horizon characterized by high silver and mercury

with gold to 3.77 g/t. Van Angeren recommended concentration of work on the Boulder Lode, Buckland Shear and 27 Pup zones (Van Angeren, 2002), with that work aimed at finding primarily disseminated mineralization rather than crosscutting quartz veins. An emphasis is made on understanding the geology.

Comment:

The preceding account of exploration efforts documents many differing approaches to exploration in the Lone Star area which, with model-driven programmes has resulted in a bias to several possible mechanisms for mineralization. The subsequent work by Klondike Star / Klondike Gold commenced with structural interpretation of the whole Klondike region and detailed study of controls on gold occurrence.

## 7. GEOLOGICAL SETTING AND MINERALIZATION

### YUKON-TANANA TERRANE

The Bonanza-Eldorado-Hunker region is underlain by the Klondike Schist, which is correlated with units of the Yukon-Tanana terrane which extends from Alaska to the southern Yukon and B.C. The Yukon-Tanana terrane is now considered to include those Devonian-Mississippian strata of continental affinity which are overlain by volcanic arc successions that include backarc and island arc tectonic settings (e.g: Colpron, 2001; Piercey et al., 1999; Murphy, 2004). These units are now polydeformed and, over a regional scale, show a range of metamorphic grade from lower greenschist to amphibolite facies (e.g., Mortensen et al., 1992; Roots et al., 2003) and have been intruded by Mississippian to Permian granitoids (e.g., Nelson et al., 2000, Liverton et al., 2005). Structural styles are similar between the Klondike (Mortensen et al., 1992) and the SE Yukon (D'El-Rey Silva et al., 2001) although ages are different, and are consistent with deformation during east to northeastward directed accretion and crustal shortening.

The terrane is preserved in fault-bounded fragments from southern B.C. to Alaska (Nelson and Friedman, 2004; Dusel-Bacon et al., 2004) and is interpreted to represent extended continental margin on which the late Paleozoic volcanic assemblages were intruded and extruded. In part, the Yukon-Tanana terrane forms the basement for Quesnellia, and the existence of mid Jurassic plutons that intrude both terranes indicate that they were sutured by that time (Nelson and Friedman, 2004). Various workers differ in their interpretation of the extent of separation of Lower Paleozoic basement to the Yukon-Tanana terrane from that of the continent. For the Alaskan part, Dusel-Bacon et al. (2004) require rifting only to produce the bimodal volcanism built on the Devonian-Mississippian. In the Yukon, the wide range of chemical signatures of the volcanics would indicate more considerable separation. Perhaps the tectonic analogue of the present day Aleutian / Kurile arcs as proposed by Nelson and Friedman (2004) explains the differences: there, cusps of island arcs impinged on promontaries of continental basement, consequently the Aleutians and Kuriles have Tertiary backarc basins; in the central parts of the Yukon-Tanana arcs the magmatism was of primitive oceanic affinity.



## Yukon-Tanana Folding

In both the Klondike and the Yukon-Tanana equivalents in the SE Yukon and adjacent B.C., styles of deformation are similar in that  $F_1$  folding transposed original bedding into parallelism with axial planar foliation such that  $F_1$  fold hinges are rarely seen. During this ductile deformation the rocks were metamorphosed to chlorite-biotite facies (and in some regions to amphibolite grade).  $F_2$  folds are isoclinal and often E to NE vergent. In the Klondike, regional scale thrust faulting ( $D_3$ ) had previously been considered to be coincident with the second deformation and constrained at late Triassic (Rushton et al., 1993). In the SE Yukon the  $D_3$  event produced very open folds nearly normal to the earlier trends and minor extensional faults (D'El-Rey Silva et al., 2001). In the Klondike, third folding  $F_3$  produced open folds over the district. This deformation is quite pervasive locally (i.e., at outcrop scale). Detailed mapping during the 2006 season in the Lone Star area indicates that the thrust faulting is likely  $D_3$  in timing. Although the deformation history of these two parts of the terrane are similar and consistent with a model of basin inversion and obduction there is a difference in age of the protolith. Whereas the Klondike Schist is Permian, the Yukon-Tanana rocks in the SE of the Territory are Carboniferous.

## REGIONAL GEOLOGY

The northwestern Klondike area is underlain by three recognisable thrust fault bounded assemblages (Rushton et al., 1993) that constitute the mid Permian Klondike Schist. These are: Assemblage III of carbonaceous quartz-muscovite phyllite, schist and marble that crops out SW of the Indian River and also to the NE of Hunker Creek. Structurally above is Assemblage II of micaceous and chloritic quartzite, feldspathic quartzite, marble and calcareous schists which is intruded by the Mt. Burnham orthogneiss, found in the east of the Klondike. Assemblage I consists of three units:

quartz augen schist; the Sulphur Creek orthogneiss; and intercalated chloritic schist, metagabbro, amphibolite, quartzite and felsic schist. The Sulphur Creek orthogneiss and the latter sequence are found in the Eldorado-Bonanza area. Thrust faults are in part marked by slivers of serpentinised ultramafics.

In the immediate claim block area Mortensen (1996) has mapped (Fig. 4) quartz- and quartz feldspar-augen schist, interpreted as being a metamorphosed subvolcanic intrusion (his unit Psas) on the immediate west side of Eldorado Creek. The Eldorado to Bonanza ridge (Lone Star) is underlain by unit PsqmPfs: felsic schists, interpreted to have been derived from a sequence of tuffs, cherty tuffs and cherts on the 27 Pup side and over the Lone Star area (Figs. 16 to 18). The east side of the ridge is largely unit PscPms: chlorite schist, mafic meta-volcanics. Northeast of Bonanza Creek units Psq Pms and Psc predominates.

## STRUCTURAL GEOLOGY

In outcrops the Klondike Schist generally appears as a well developed L-S tectonite characterized by a combination of linear (L) and planar (S) fabric elements. In general, at least four phases of deformation ( $D_1$ - $D_4$ ) can be attributed to progressive fabric development. Not all the deformation phases are observed throughout the schist.

The first phase of deformation consisted of ductile completely isoclinal folding. Only rare cm-scale rootless fold hinges may be observed. In the Eldorado-Bonanza area the obvious foliation seen is  $S_2$  i.e, compositional layering transposed by  $F_2$  folding. In only one instance during the present work was original bedding ( $S_0$ ) observed (at 27 Pup). The attitude of  $S_2$  foliation in the Eldorado-Bonanza area describes a ridge-scale macroscopic antiformal structure whose NE limb is sheared by a thrust fault low on the NE side of the Lone Star ridge. This is indicated by sheared serpentinite, soapstone and graphitic phyllite encountered during the 2004 trenching (trench 04-17) and in the 2006 excavations: trenches 06TR03 to -05.

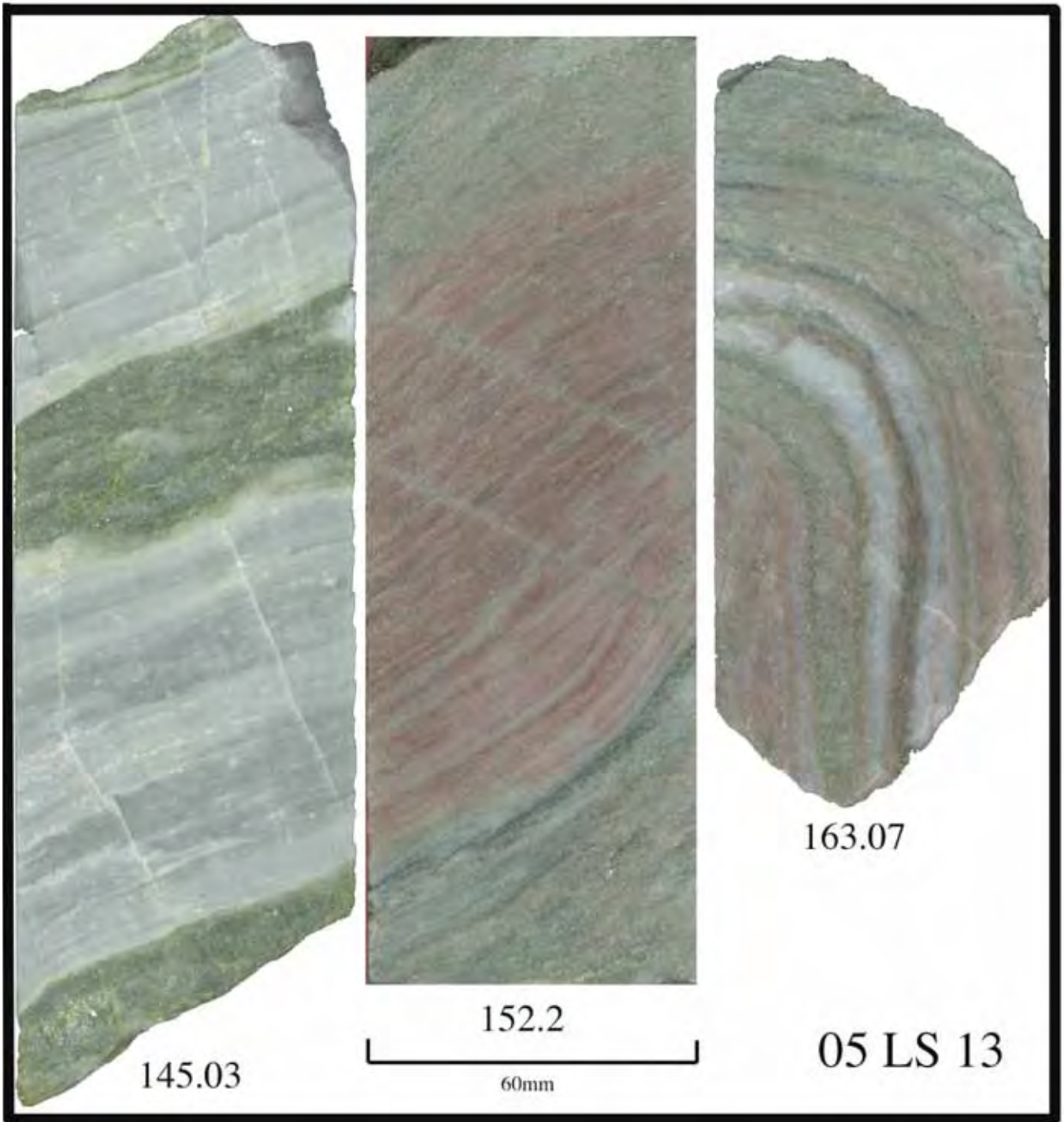
The third phase of deformation ( $D_3$ ) folds  $S_2$  with generally tight-similar style folds with NW trend. Note that  $F_3$  crenulations developed in the fold hinges define an  $L_3$  lineation. A penetrative axial planar foliation ( $S_3$ ) is occasionally developed.  $F_3$  folding



**DDH 05-01, 31.69m**

F2 and F3 folding in quartz-rich schist

Figure 16



DRILL CORE OF META-RHYOLITES FROM LONE STAR

Figure 17

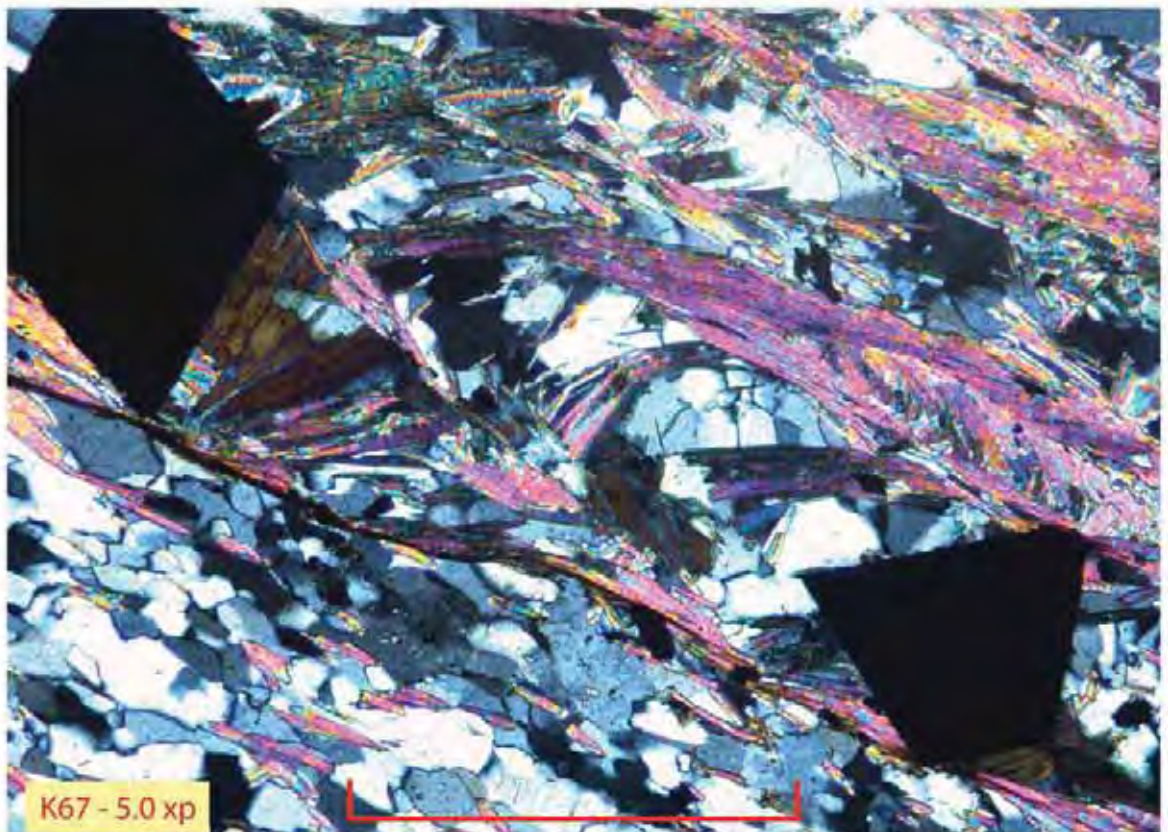
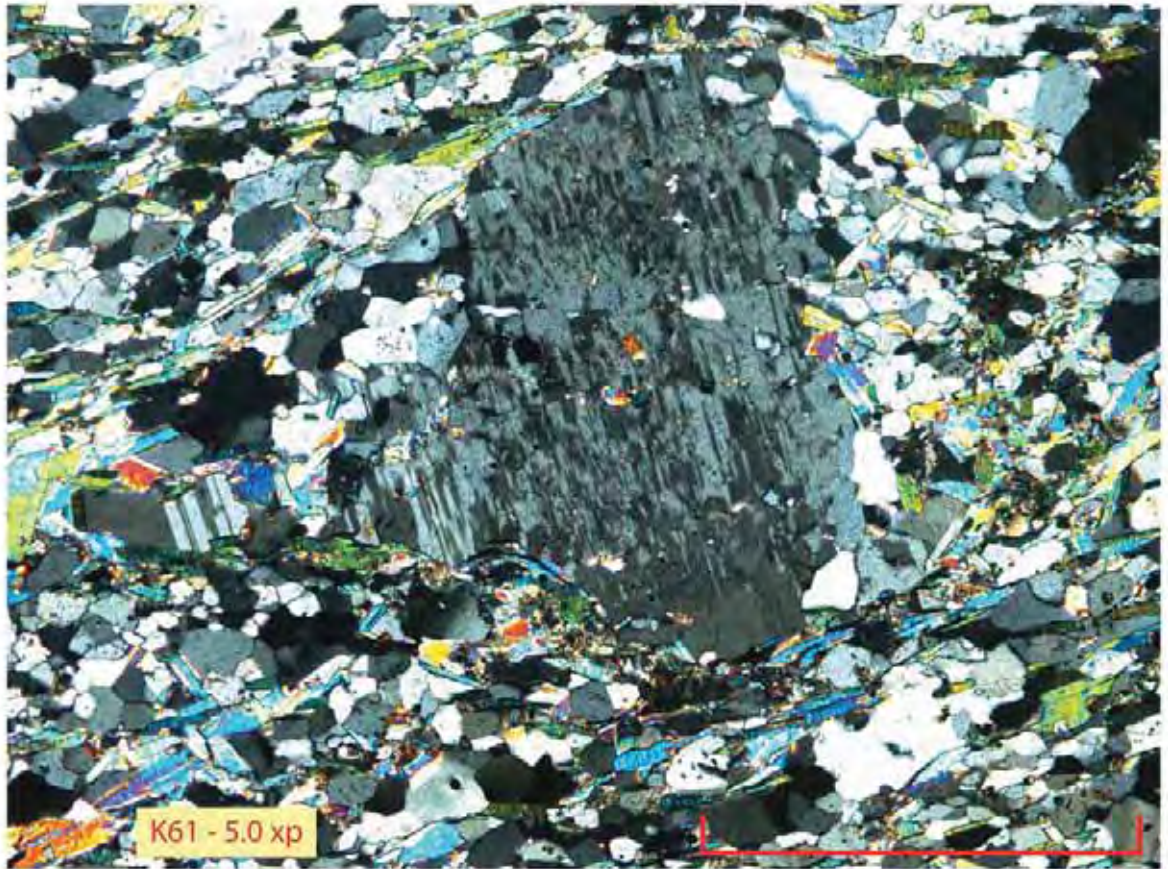


Figure18: photomicrographs of felsic and pyritic schist  
K61 shows a plagioclase porphyroblast, K57 shows pre-D3 pyrite with shears and pressure shadows of chlorite and quartz

of metamorphic segregation veins has produced rootless fold hinges that outline  $S_3$  (intrafolial folds).

Phase 4 deformation ( $D_4$ ) is conjugate angular kink folds and possible macroscopic warping (km-scale) of the penetrative foliation. This produced pervasive folding and complex refolded folds. Fold styles range from tight similar to chevron folds (both are observed in the Lone Star region) and broad open folds.  $F_4$  fold axes are at a high angle to  $F_3$  fold axes and may appear as two conjugate sets: N to NE and E to SE. In general, fold style appears to be lithologically controlled. For example, the more incompetent mica rich units are typically folded with a  $S_3$  crenulation cleavage developed. The cleavage is either spaced on the cm scale or becomes the dominant fabric (less common, but this is seen in trench 06-06). An example of folding is shown in Figs. 16 and 19.

Detailed mapping over the Lone Star-Pioneer area has produced a reinterpretation of the macroscopic structures above the Lone Star thrust fault. The immediate succession of felsic schist at the Lone Star has been disrupted by northward striking brittle faulting (i.e., possibly of both late  $D_4$  and  $D_5$  timing).

Structural studies during the 2007 season have included an interpretation of the effect of brittle, presumably extensional faulting in the Lone Star area. This faulting would likely be coeval with the larger fault zones marked by gouge zones such as are found along Eldorado Creek and at the Dysle prospect (27 Pup), i.e. they would represent a  $D_5$  deformation. These are expressed as regularly spaced moderately to steeply dipping, roughly N-S trending normal faults (typically 5-25cm of clay gouge) with submetre to 10s of metres displacement, and are observed throughout the Lone Star: Figs. 20 & 21.



Figure 19: Outcrop photograph of Klondike Schist showing three generations of folding. Rule is in inches; at Eldorado Dome. F1 and F2 are completely isoclinal and F3 produces an open fold of F2 and F1 transposed foliation.

Table 1: Summary comparison of thrust slices (in relative structural order) in the Klondike area relevant to gold exploration (based on field observations and discussions with Jim Mortensen).

Thrust slice	Rocks	Metamorphic grade	Textural reconstitution	Metamorphic structures	Late metamorphic folds
Klondike Schist (may include 2-3 slices)	Micaceous schist, quartzofeldspathic schist	Upper greenschist facies (biotite zone)	Pervasive recrystallisation, coarse metamorphic grain size	Pervasive coarse mica foliation, strong metamorphic segregation,	Common, spaced micaceous cleavage, abundant mica recrystallisation
Nasina Schist	Dark (graphitic?) micaceous schist	Middle greenschist facies	Pervasive recrystallisation, fine metamorphic grain size	Pervasive slaty foliation, weak metamorphic segregation	Common, spaced fracture cleavage, minimal mica recrystallisation
Greenstones	Metabasic rocks	Lower greenschist facies	Variable recrystallisation, fine metamorphic grain size	Minor foliation development	None?

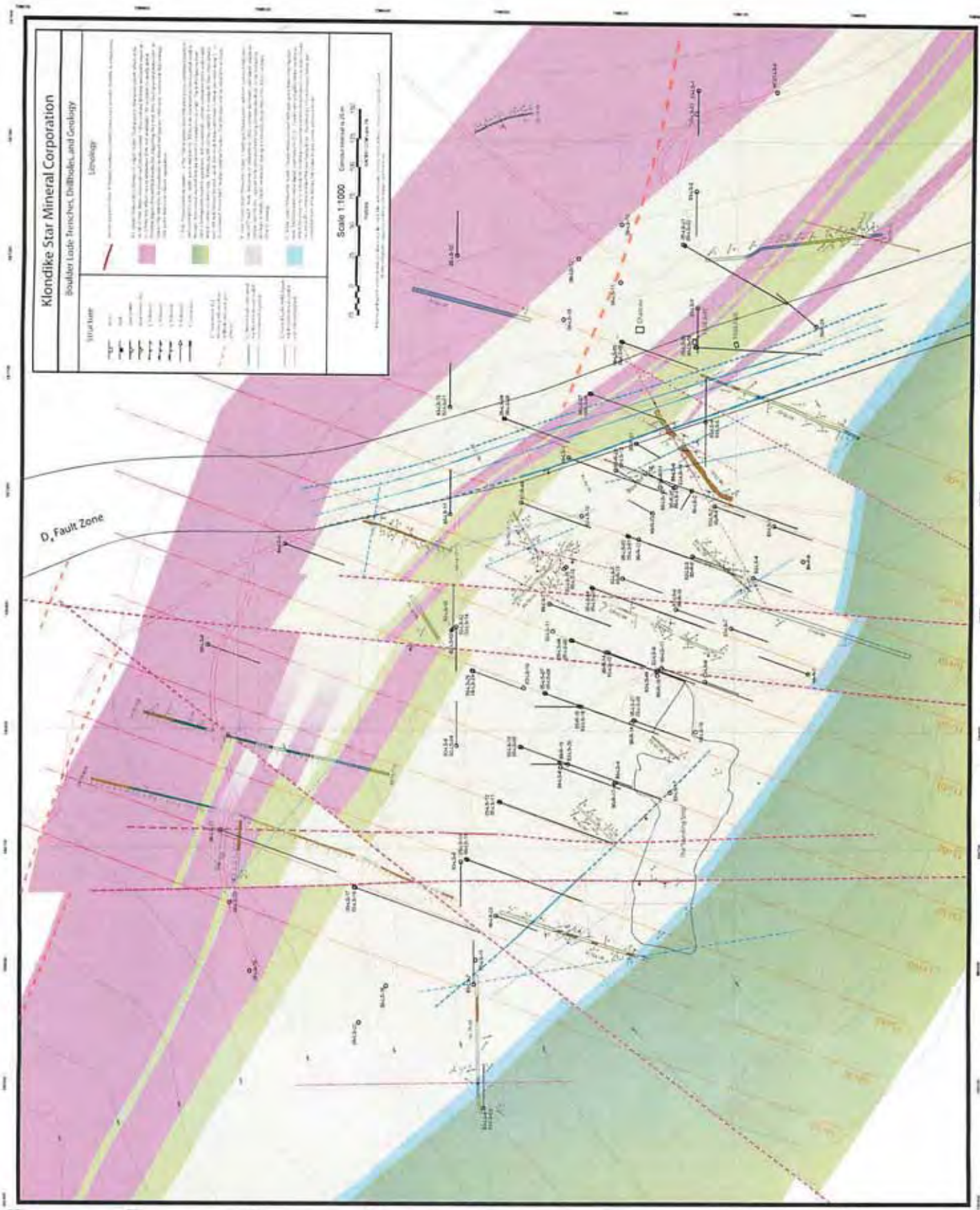
### Quartz Vein System of the Klondike and Mineralization

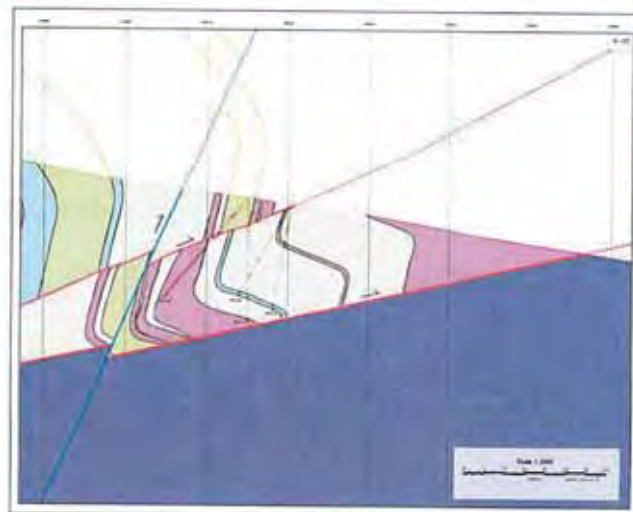
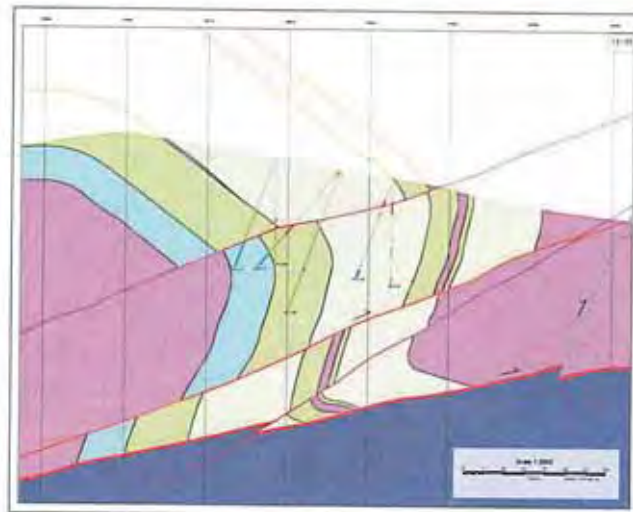
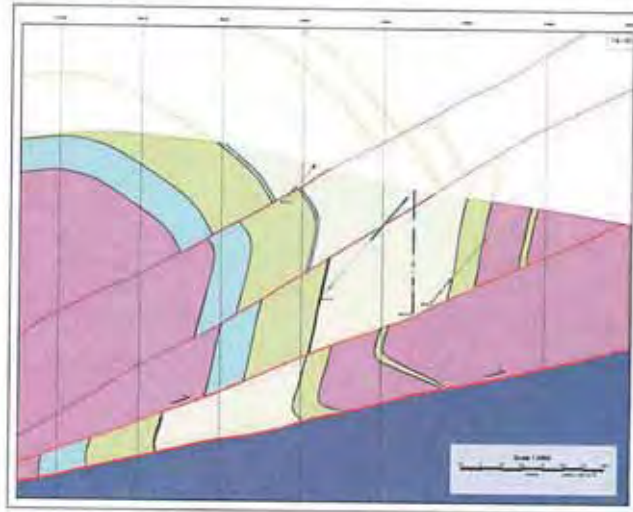
Two types of quartz vein are common in the Klondike:

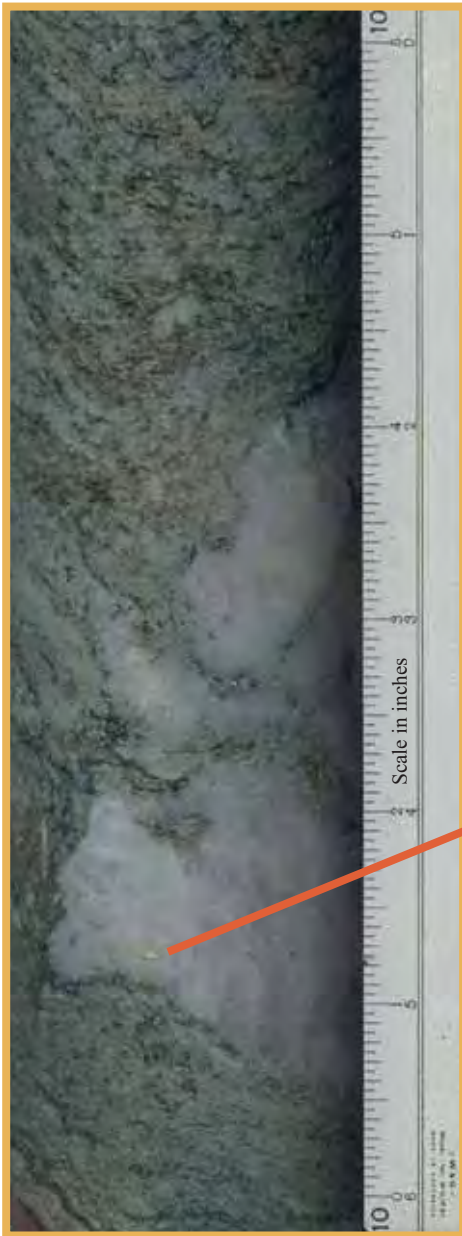
- a) foliaform veins that are typically concordant with transposed bedding and which may be up to metres thick, but which are usually lenticular. These are almost ubiquitously barren of gold and,
- b) discordant veins that carry sulphide (pyrite, with minor galena, chalcopyrite and tetrahedrite) mineralization and visible gold which is both commonly contained in selvages of pyrite (or after weathering, pseudomorphs of goethite/limonite) and as free gold grains in the white quartz (Fig. 22). The discordant veins are rarely up to 2-3m thick and can persist for hundreds of metres strike length. Some spectacular gold grades are reported from this vein type (Rushton et al., 1993).

The majority of discordant veins occupy approximately planar, smooth sided fractures. Most are typically several cm thick, but some are up to 0.5 m thick. Many of the veins mapped typically terminate as gradually tapering structures in 2 dimensions. Examination of the vein margins at the macroscale reveal a distinct absence of any







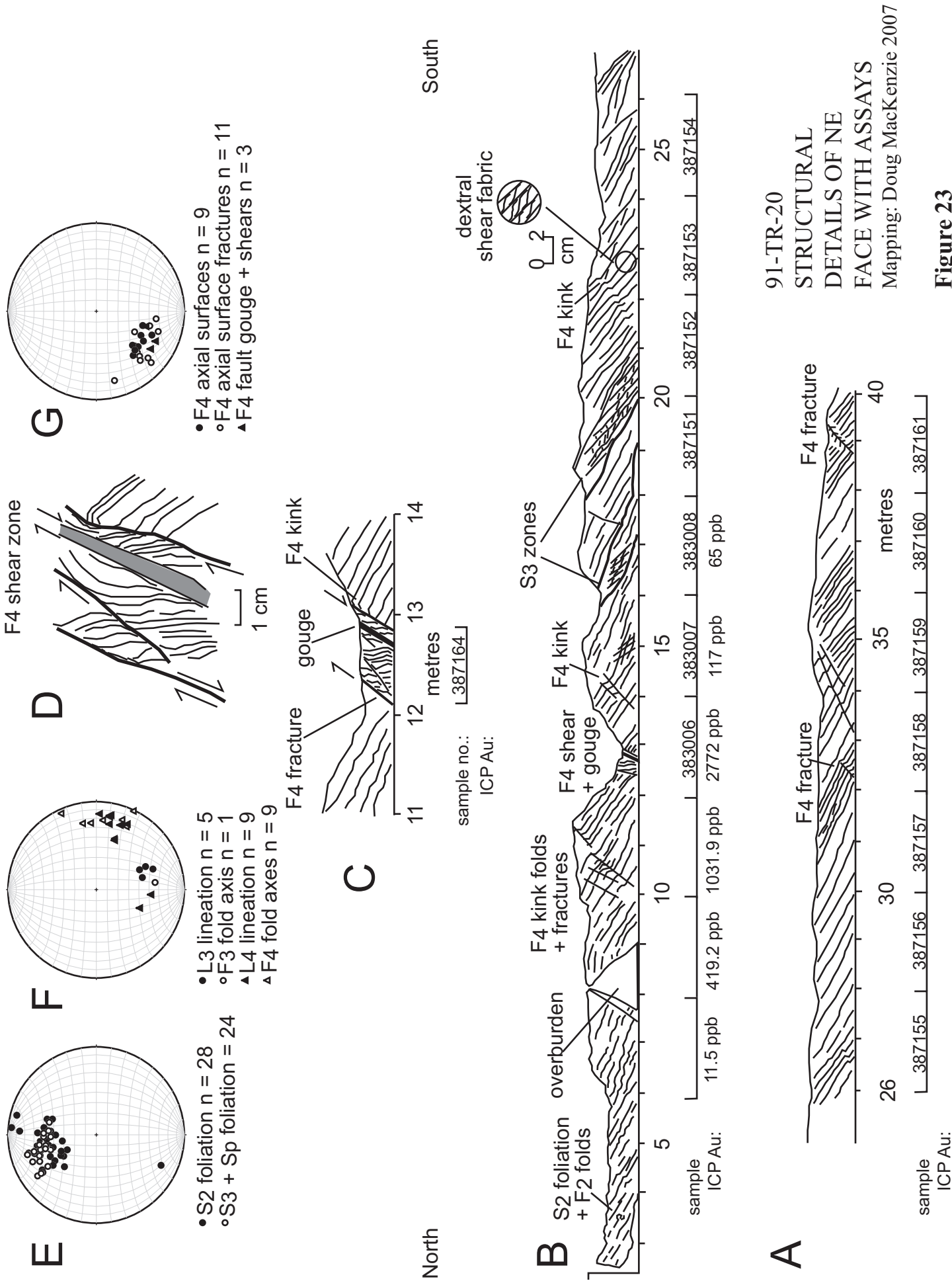


05 LS 09: 37.28m. GOLD IN QUARTZ

hydrothermal alteration with the exception of locally developed sulphide rich vein / wallrock margins over much of the Klondike.

Timing of the discordant, mineralized quartz veining is likely immediately after D<sub>4</sub>. A model of mesothermal-type vein formation is proposed by Rushton et al. (1993), whereby the SE part of Klondike represents a deeper level in the system and that the Hunker Dome region would have been mineralized as ascending meteoric / metamorphic CO<sub>2</sub> - bearing fluids reached a level sufficient for the exsolved CO<sub>2</sub> gas to have effervesced. They interpret the 27 Pup-Lone Star area as having being mineralized at a comparatively shallow level (pressures of 0.3 to 0.625 kb). More recent work (J.K. Mortensen, pers. comm.) favours a model for foliaform vein formation as secondary structures developed between near horizontal extensional floor and roof faults during the process of rapid early Cretaceous uplift, analagous to formation of detachment faults above metamorphic core complexes. Very detailed mapping in the Buckland area has indicated that the 'Buckland shear' referred to in Arbor resporces' work is a D<sub>4</sub> deformation zone (Fig. 23).

Studies of morphology of gold grains in the placers of the Klondike (Knight et al., 1999; Dumula and Mortensen, 2002; Crawford, 2007) demonstrated a clear relationship between gold particle shape and distance from lode sources in the Klondike. Major and trace element compositions (Mortensen et al., 2006) give an even more useful indication of source of placers. Gold, silver, copper and mercury contents are diagnostic of the lode sources e.g., the 27 Pup-Oro Grande-Lone Star quartz lodes and Hunker Dome show distinctively high-fineness gold that is reflected in the placers downstream. Bear Creek and Violet quartz lodes are of lower fineness. Chapman et al., (2010) confirm that the majority of placer gold had very local sources centred on hydrothermal mineralization.



**91-TR-20**  
**STRUCTURAL**  
**DETAILS OF NE**  
**FACE WITH ASSAYS**  
 Mapping: Doug MacKenzie 2007  
**Figure 23**

Table 2: Summary of principal structural events relevant to the structure of hydrothermal gold deposits rocks (shown from oldest, bottom, to youngest, top) that affect the Klondike Schist, as compiled in this study. \*Age of events is deduced from regional considerations, through discussions with Jim Mortensen.

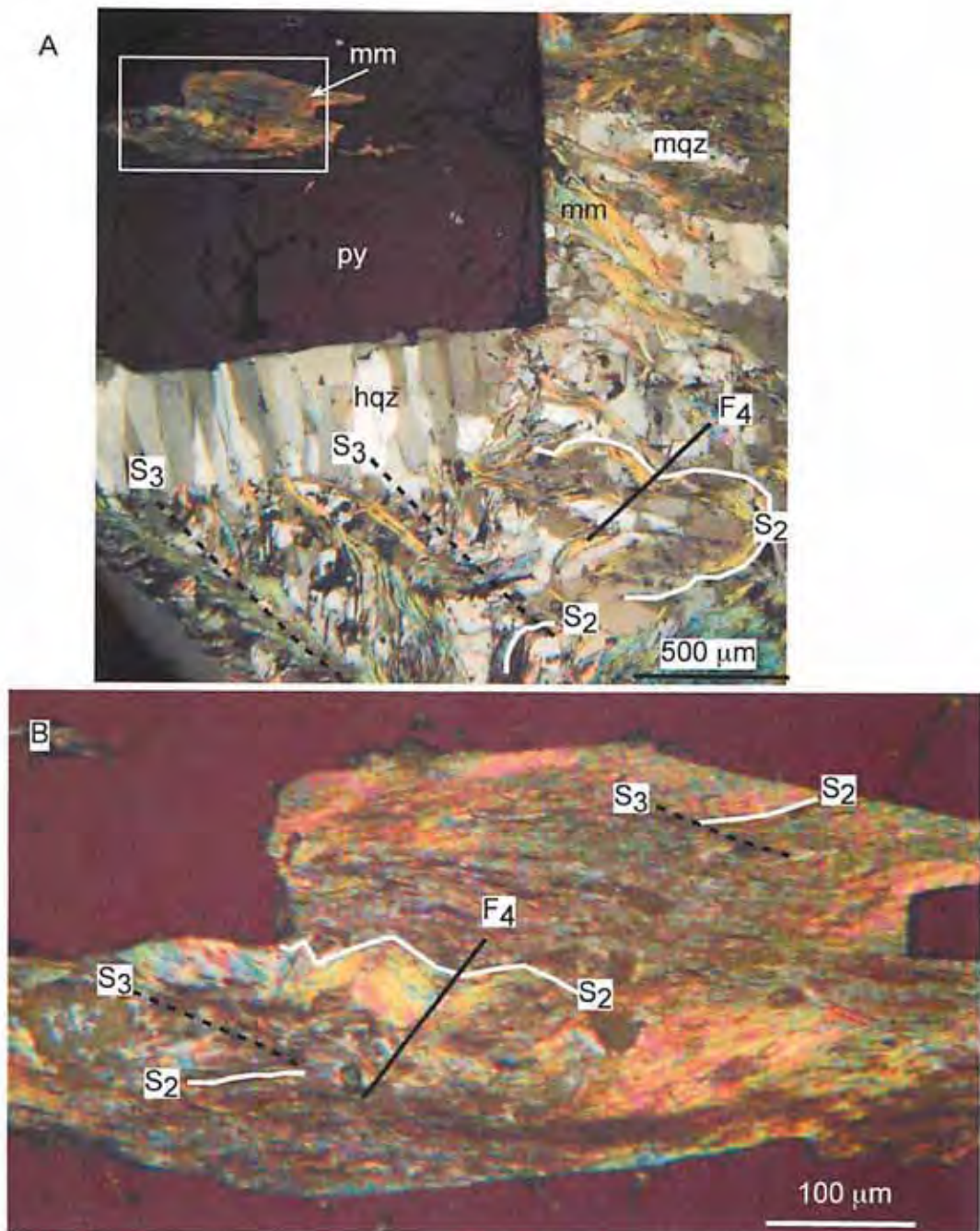
Event	Designation in Klondike Schist	Main feature	Orientation	Mineralisation	Deformation	Age*
Normal fault	Normal fault	Gouge zones	NW to N	Pyrite in silicified schist	Regional extension	Cretaceous?
Mesothermal veins	Discordant quartz veins	Massive quartz veins	Variable, often NW	Au, pyrite, other sulphides	Local extension	?
Kink folds	F <sub>4</sub>	Angular folds, faults, shears	Two orthogonal, N to NE; E to SE		Compression	?
Thrust	Sthrust	Thrust shears	Low dip		Compression	Jurassic?
Late metamorphic folds	S <sub>3</sub>	Recumbent folds, spaced cleavage	Variable		Compression	Permian?
Pervasive foliation	S <sub>2</sub>	Foliation, isoclinal folds	Variable		Compression	Permian?
First foliation	S <sub>1</sub>	Foliation, segregations	Variable		Compression	Permian?
Deposition	S <sub>0</sub>	Bedding etc	Not seen	Sulphides in some rocks		Permian?

Various fabrics are illustrated in Figs. 16, 18 & 19.

## 7b GOLD MINERALIZATION

The possible scenarios for contribution to gold mineralization in the Klondike, here listed in progressively younger ages, are:

- a) Syngenetic mineralization. Some of the sulphide present in the metavolcanics and metasediments of the LoneStar region may have been emplaced as V.M.S. type mineralization. Whether this mineralization may have contributed to the gold is at present conjectural. The presence of manganiferous sediments (now piemontite 'quartzite', found in association with meta-rhyolite and -dacite) indicates that the original sedimentary-volcanic sequence contained exhalites in association with volcanics. These exhalites as well as the volcanic pile are a potential source of low grade gold in the manner of the Rhynie mineralization, Scotland (Rice et al., 2002);
- b) Orogenic gold, formed during contraction and obduction of the Yukon Tanana accreted terrane, i.e., late Permian to Triassic timing. As stated above, the discordant quartz vein systems are the obvious source for the bulk of the Klondike gold;
- c) Pluton-related gold associated with granitic magmatism. Although two ages of pre-Tertiary magmatism are recorded: the Permian intrusions that are now mapped as orthogneisses (Mt. Burnham and Sulphur Creek) and the undeformed Cretaceous granitic bodies of the Tombstone Suite, it is the latter that might be a contender for the metallogeny of at least part of the region. To date no evidence for a shallow buried pluton beneath the Klondike has been found;
- d) Mineralization associated with the Carmacks volcanics. These volcanics crop out to the south of Calder summit (the Hawk claims) and to the south of the Indian river, where extensive sills intrude the fluvial / deltaic sediments (conglomerate, sandstone, shale and coal measures) of the Indian River Formation. The conglomerates at McKinnon Creek (Minfile 115 O 054) were prospected by shaft sinking and driving of adits in 1901-1902. Gold values were reported from these historical workings. Klondike Star fieldwork during 2005-6 indicated that the conglomerates that crop out in Montana Creek show quartz-healed microfaults and pyrite mineralization. It is possible that such faulting might have accompanied epithermal mineralization derived from the Upper Cretaceous to Paleocene volcanism (see discussion by Lowey, 1985). This would account for the very



PHOTOMICROGRAPH OF A THIN SECTION OF SCHIST FROM THE BOULDER  
 OPENCUT. A = Schist containing pyrite crystal rimmed by hydrothermal quartz  
 (pressure fringe); B = detail of schist inclusion in pyrite with structural elements shown.  
 From Doug MacKenzie, work in progress.

Figure



different composition of gold found in the Indian River placers compared to that of the Eldorado-Bonanza drainages.

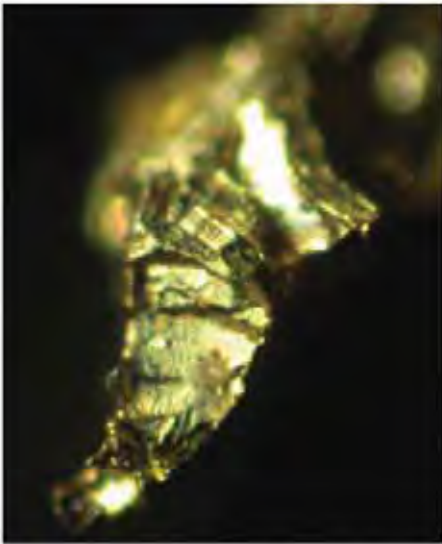
Comment:

Hydrothermal pyrite mineralization that post-dates D<sub>4</sub> has been identified in the Boulder opencut of the Lone Star property (Fig 24), but no evidence is available to indicate any magmatic component to that mineralizing event. Extensive carbonate/chlorite alteration (which may also include some pyrite mineralization/remobilization) of the presumably Eocene dykes in the Pioneer Zone may constrain the timing of epithermal mineralization to syn or post Eocene dyke emplacement. Whether this event re-mobilized gold or not is unknown.

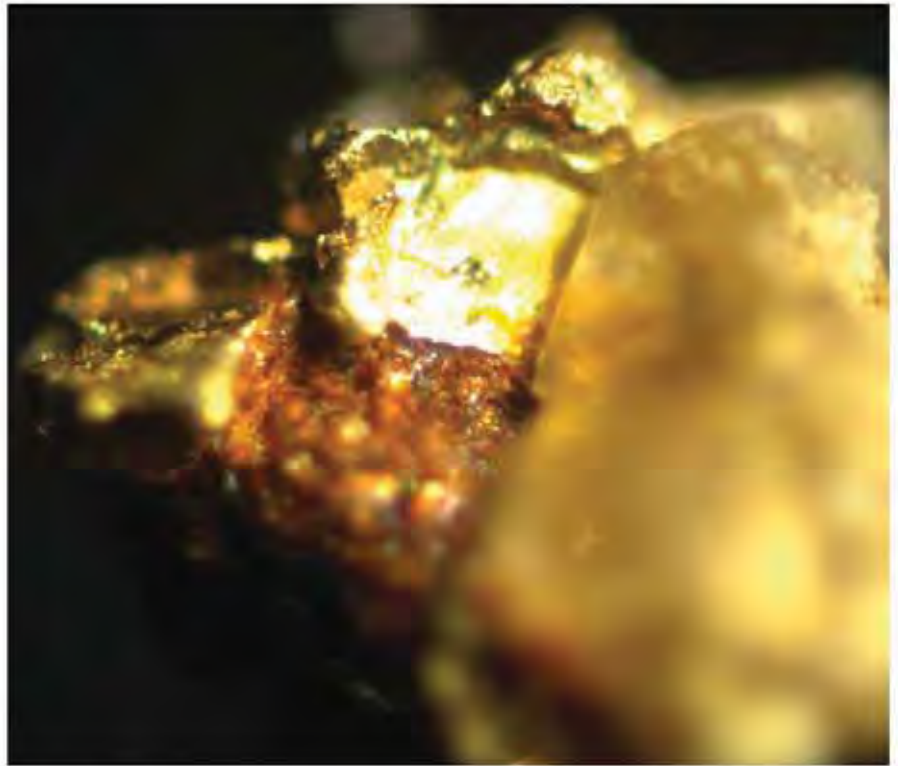
The 2005 and 2006 drilling programmes have revealed visible gold in a variety of settings:

- a) In discordant quartz veins that occur within a zone of 'spotted' i.e., chlorite-carbonate altered, quartz muscovite schist. Some of these do mantle pre-existing pyrite crystals: Fig. 25;
- b) In pyrite crystals within composite quartz-carbonate veins (Fig. 26);
- c) As discrete gold grains in schist;
- d) In rare semi-concordant rhodochrosite masses;

These occurrences are consistent with the gold being emplaced during the extensional event that formed discordant quartz-carbonate veins, subsequent to the more common foliaform quartz segregations. The gold may have had a comparatively local source (a syngenetic origin in the volcanic sequence) or may have been transported along major fault systems and their secondary structures from either or both of deeper metamorphic or magmatic sources. Influence of hydrothermal activity in the Lone Star region is indicated by occurrence of rare topaz seen in thin sections. Most of the gold detected by analysis in the 2005-6 drilling programme was not observed during the logging. It is likely that a considerable fraction of these grades may represent gold that is contained in fine-grained pyrite. This is indicated by free gold recovery in milled bulk samples. Poor recoveries in some bulk samples (e.g., 07-LS-B1), without the gold reporting to the sulphide concentrate, may also indicate that the gold is present in ultrafine form or locked up in one of the silicate minerals. Gold could also be contained in the schist as free grains. The occurrence of assay-indicated gold in diamond drill core that does not have obvious

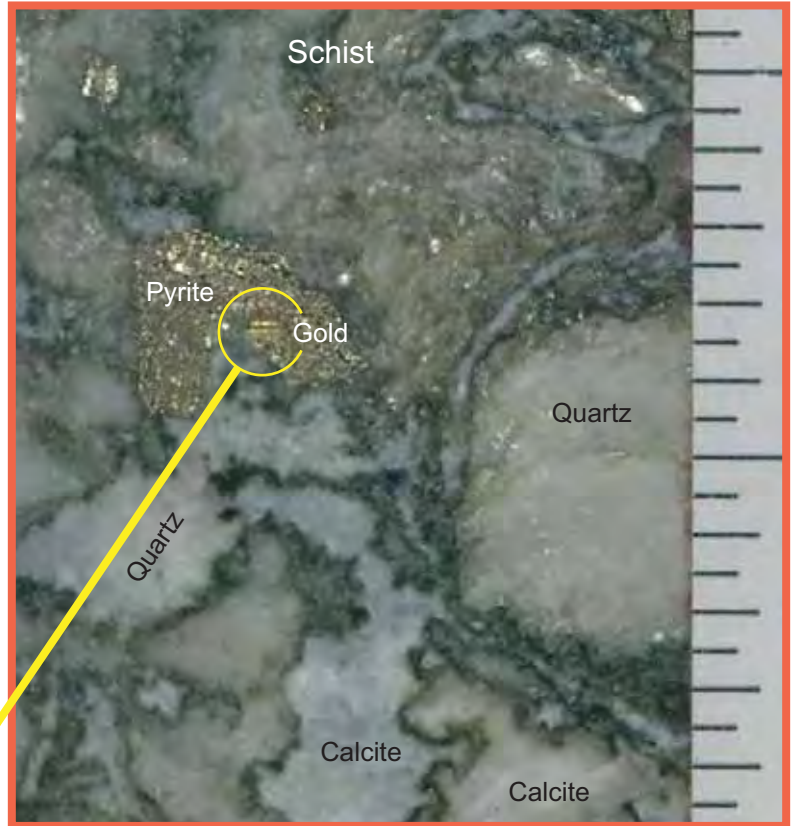


Heavy mineral concentrate  
Gold grains that have been moulded  
around pyrite crystals (now limonite).  
From concentrate panned after crushing  
discordant quartz veins from Trench  
87-16.



## TRENCH 87-16: GOLD PANNED FROM CRUSHED QUARTZ VEIN

Figure 25



DRILLHOLE 05 LS 16: 82.5m.  
GOLD INCLUDED IN A PYRITE  
CRYSTAL

Figure 26

quartz veins indicated in drill logs was investigated during the 2007 season (MacKenzie et al., 2008c).

## 8. DEPOSIT TYPES

The complex structural history of the various assemblages in the Klondike allow the possibility of several sources for gold mineralization.

Professor Mortensen has recognized nine distinct styles of lode mineralization in the greater Klondike region:

1. Kuroko-style VMS base metal occurrences with felsic Klondike Schist;
2. Quartz  $\pm$  carbonate veins in Slide Mountain terrane greenstones and ultramafics (Dome Road and lower Hunker Creek);
3. Carbonate-chalcedony veins in altered ultramafic rocks (Ben Levy occurrence on Hunker Creek);
4. Porphyry Cu  $\pm$  Mo veining in Late Cretaceous granodiorite stocks (Whiskey Hill);
5. As ( $\pm$  Au, Mo, Bi) mesothermal and/or epithermal veins and breccia zones associated with Late Cretaceous granodiorite stocks (Sourdough Gulch, Dago Hill);
6. Fluorite-quartz veins in Eocene quartz-feldspar porphyry (Hunker Road);
7. Epithermal chalcedony veins in Eocene felsic tuffs and associated sediments (Germaine Creek);
8. Ag-Pb-Cu skarns in Nasina carbonates associated with Eocene quartz-feldspar porphyry (West Dawson occurrence);
9. Quartz veins in the Klondike Schist: only these have *significant* gold content.

The other eight styles of mineralization will have their own particular alteration mineralogy and geochemical signature, which complicates the picture!

### OROGENIC GOLD

Those gold deposits recently classified as orogenic gold deposits occur along convergent plate boundaries and are formed during collision or accretion. Most commonly emplaced during peak to late tectonic timing, they are found in predominantly in greenschist facies metamorphics with some examples in amphibolite grade hosts.

Temporal association with granitic magmatism is not necessarily demonstrable, but there is a frequent association with contractional (thrust) faulting (e.g., Groves et al., 2003, Fridovsky and Pokopiev, 2002). Gold mineralization associated with major fault systems is frequently found in the smaller-scale second- or third-order structures (e.g., Cox, 1999). In the larger cratons it may be demonstrated that deposits have a logarithmic areal i.e. fractal distribution (e.g., Blenkinsop and Sanderson, 1999). Since it is likely that fault systems have had a major control on gold distribution in the Klondike a similar geometric relationship might be applicable here.

## 9. EXPLORATION

### KLONDIKE GOLD / KLONDIKE STAR WORK 2004-2007

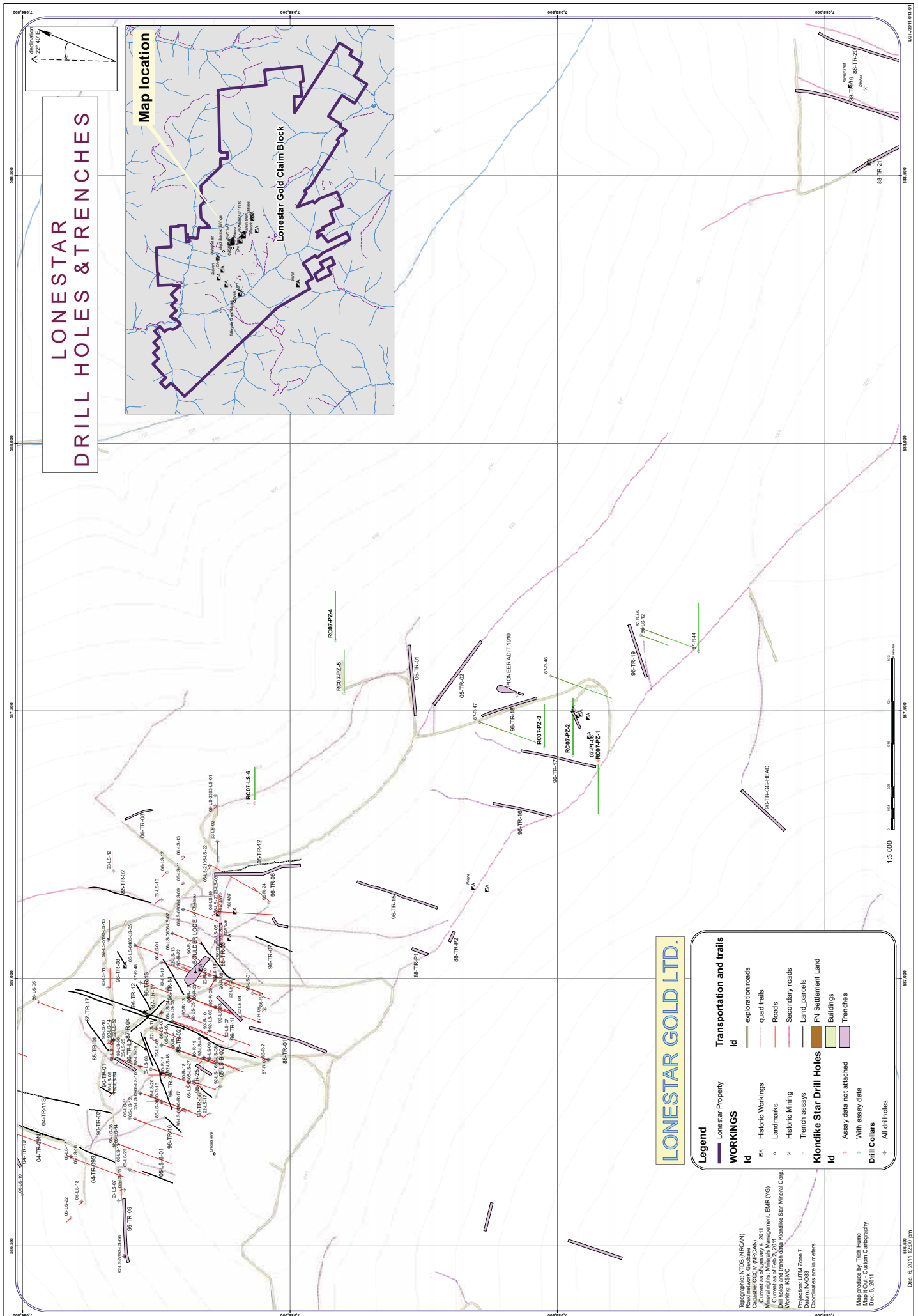
This section of the report describes the work of which author worked has first-hand knowledge.

The 2004 exploration program was carried out by a joint venture between *Klondike Gold Corporation and Klondike Star Mineral Corporation*. This program concentrated on the main property: the Lone Star, Oro Grande and 27 Pup areas and is documented in Liverton and Mann (2005). A gravity circuit mill was constructed on Eldorado Creek to process bulk samples and the first few samples (e.g., 'NUG' from the Nugget zone) were run to test the equipment.

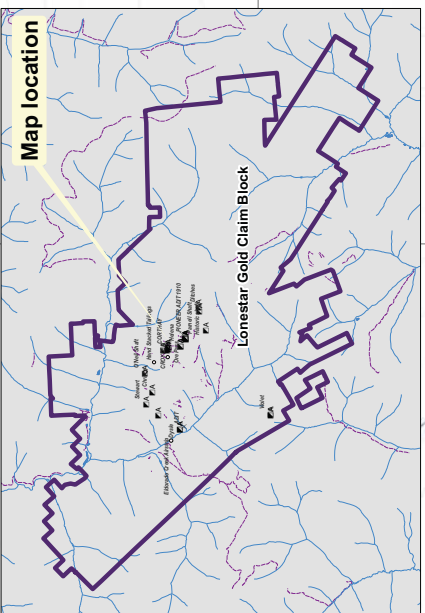
Fieldwork consisted of surveying, detailed geological mapping and trail construction with trenching on the NW extension of the LoneStar mineralized zone, and at Oro Grande and 27 Pup. New rock exposures were chip sampled and assayed and detailed geological maps prepared for the latter two areas. This work was continued during 2005, together with the commencement of a major drilling program.

### SURFACE WORK

The 2005 work program started with trenching of gouge zones in Eldorado Creek that represent a brittle fault zone that follows the NNW trend of the creek. No significant gold values were obtained from assays. Further extensive trenching was performed at the Lone Star (Fig. 27), to the NE of the drilled area to expose the Lone Star Thrust zone (06-Tr-3 to 5) and 04-Tr-17 was cleaned out. Trenches 04-Tr-17, 06-Tr-04 and -05 exposed the thrust zone, which was mapped in detail to deduce the relationship of folding to thrust faulting (Fig. 28). A major trench was excavated in the Oro Grande area which yielded excellent structural data and significant gold values at its western end, which was named the JF zone. Note: further excavation of this zone is planned for 2012. The quartz vein system on the west side of Eldorado Creek ("310 Zone"), partially exposed in earlier Arbor Resources work was trenched, mapped and sampled and a small bulk sample taken.



# LONESTAR DRILL HOLES & TRENCHES



**LONESTAR GOLD LTD.**

**Legend**

**WORKINGS**

- Historic Workings
- Landmarks
- Historic Mining
- Trench assays

**Klondike Star Drill Holes**

- Assay data not attached
- With assay data
- All drillholes

**Transportation and trails**

- exploration roads
- quid trails
- Roads
- Secondary roads
- Land parcels
- FN Settlement Land
- Buildings
- Trenches

**Drill Collars**

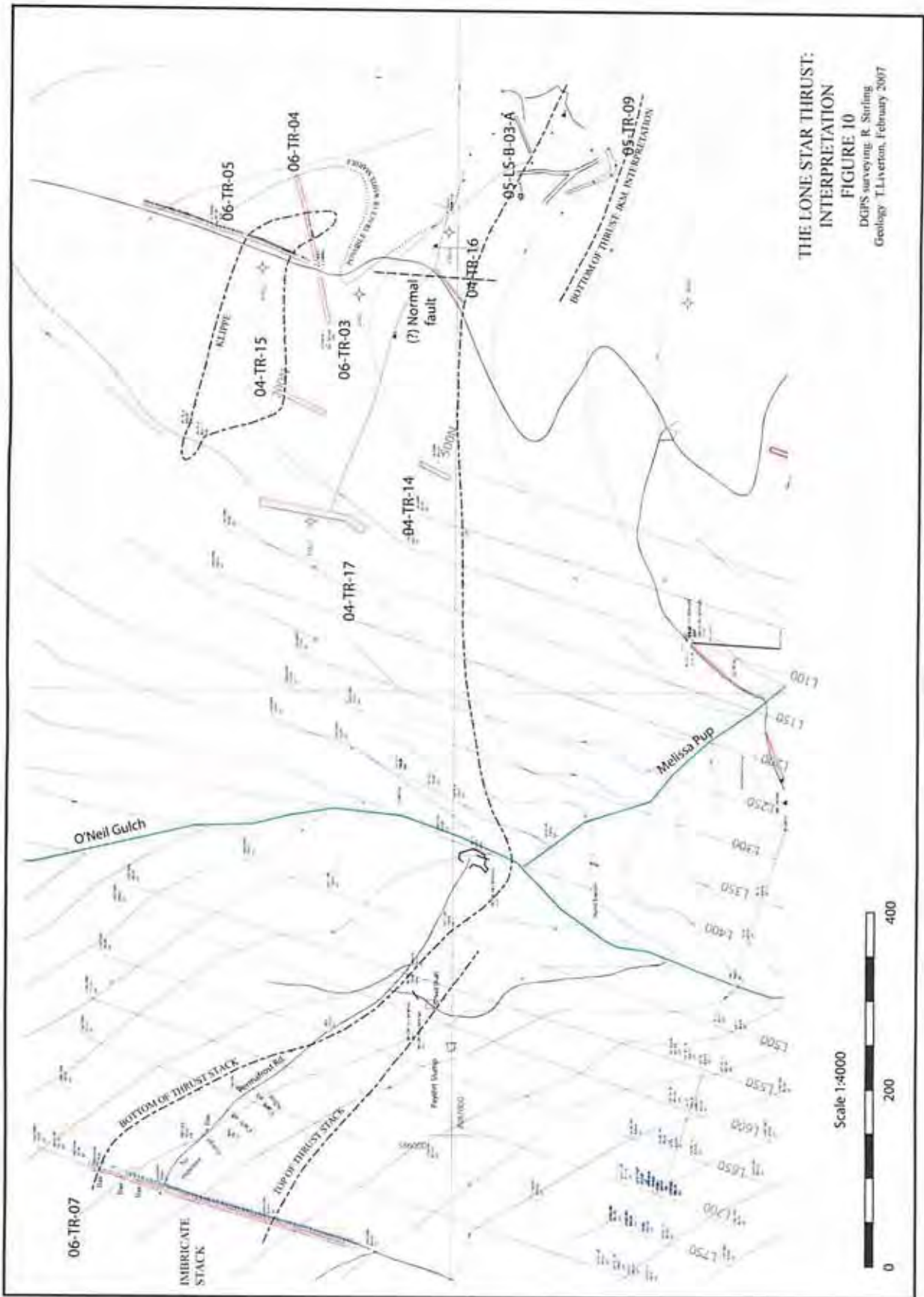
- Assay data not attached
- With assay data
- All drillholes

Topographic: NTDB (NRKAN)  
 Contour: 10m  
 Coastline: 1:50,000 (1980s)  
 Current as of January 2, 2011.  
 Map: 1:50,000 (1980s)  
 Current as of Feb 2, 2011.  
 Drill holes and trench data: Klondike Star Mineral Corp  
 Working: KSMC  
 Projection: UTM Zone 7  
 Coordinates are in meters.

Map produced by: Tish Hunt  
 Made in: Out-Country Cartography  
 Dec 6, 2011

Figure 27





THE LONE STAR THRUST:  
 INTERPRETATION  
 FIGURE 10  
 DGPS surveying: R. Sirling  
 Geology: T. Laverton, February 2007

Figure 28

The 2006 programme utilized an I.P. survey (Hildes, 2007) over three surveyed grids: one to the west of the Walcott Lone Star grid and one to the east with a separate grid over the Buckland 'zone', which was tied to the Lonestar grids. The same baseline as the original Walcott grid was used at Lone Star and the grids were surveyed with RTK differential G.P.S. Maps of chargeability and resistivity for 50m depth resulting from the Aurora Geosciences Ltd. survey are presented, together with a summary map (Figs. 29 to 31).

Hildes concludes,

*'The IP / resistivity surveys identified a number of conductive trends that fall within two general directional sets suggesting structural control. In general there are not chargeability trends associated with the conductive features.'*

*- The main chargeability high from the 1987 Walcott IP survey lies over the main Lone Star zone and has been the hub of past exploration. It is immediately adjacent to the conductive trend labelled 'D' [Fig. 29], which corresponds well to the reported area of altered felsic and volcanic schists, identified by Kennecott's 1993 exploration and indicated to host mineralization.*

*- Significant chargeability anomalies were identified on the Buckland grid: the anomaly at L800E, 200N [C on Fig. 29], the high chargeabilities on lines 1000E and 1100E between 200N and 300N and the high chargeabilities on the south ends of lines 1200E and 1250E [B on Fig. 29]. The chargeability anomalies labelled B & C are of particular interest because of their proximity to convergence zones of conductivity trends, suggesting structurally controlled mineralization. These targets are recommended drill targets.*

*- The Lone Star East grid showed a band of slightly elevated chargeability, which may be consistent with stratabound mineralization if the trend matches fold axes. There is further, extensive, elevated chargeability through the north east part of the grid, particularly on lines 420E, 480E, 540E and 600E. A particularly favorable target is indicated by 'A' where there is a convergence of conductive features coincident with elevated chargeability superimposed on the weak band of elevated chargeability. This is a recommended drill target.*

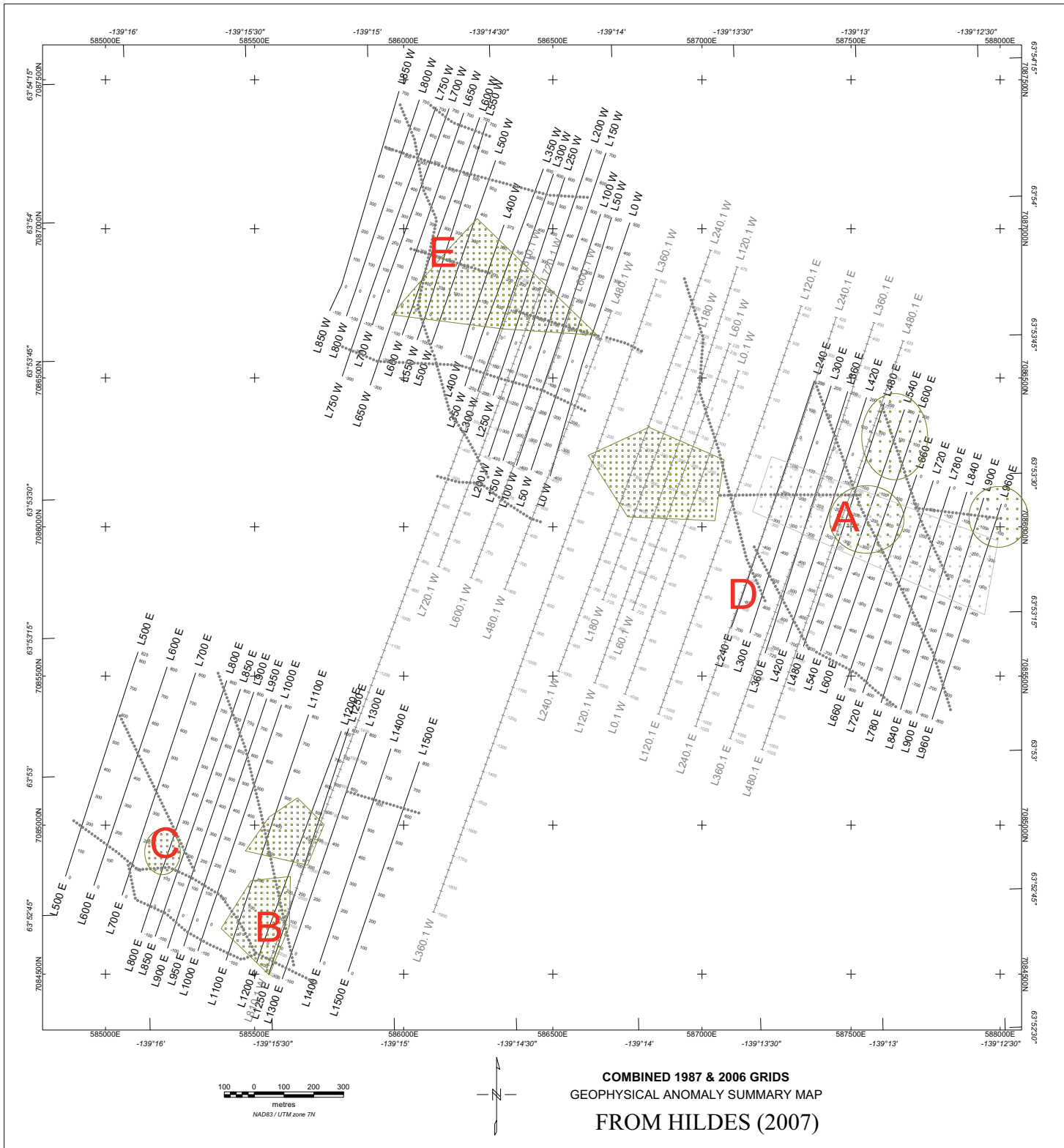
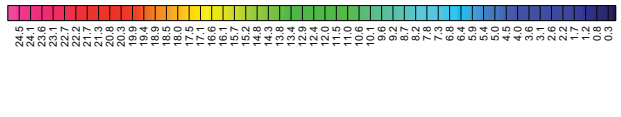
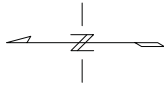


Figure 29



**Recovered Chargeability**  
(mV/V)

Gridding Algorithm: Minimum Curvature  
Filter: Minimum Curvature  
Cell Size: 20



**KLONDIKE STAR MINERAL CORP.**  
**INDUCED POLARIZATION SURVEY**  
**ELDORADO PROPERTY, COMBINED 1987 & 2006 GRIDS**  
**RECOVERED CHARGEABILITY - 50 m BELOW SURFACE**

NTS: 1:15000  
Datum: NAD83  
Proj: UTM Zone 7N  
Date: 13 Feb 07  
Drawn by: DH  
Appendix G

**AURORA GEOSCIENCES LTD.**

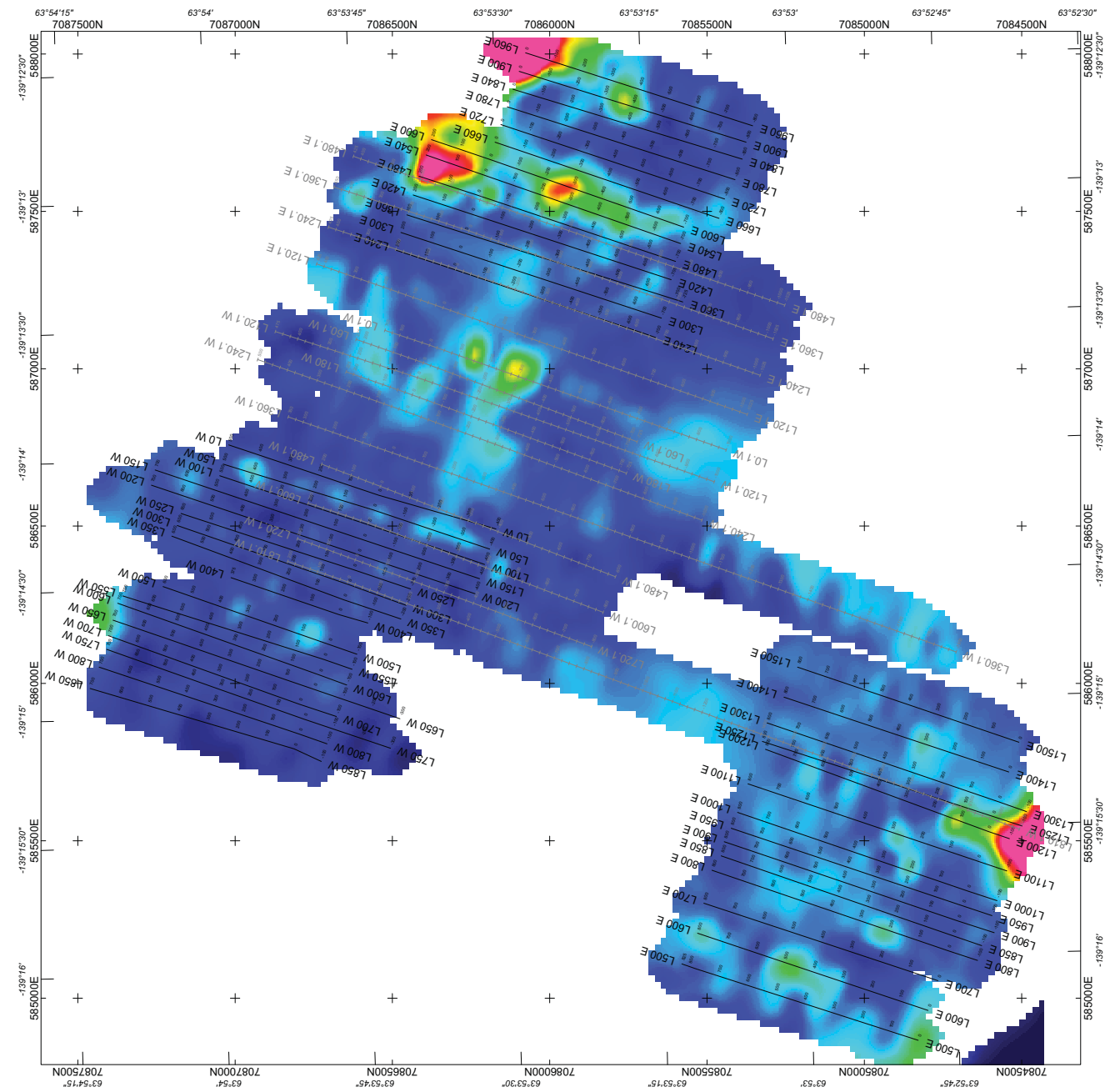
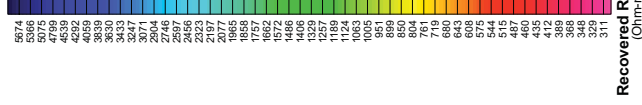
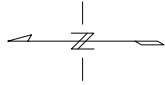


Figure 30



Recovered Resistivity  
(Ohm-m)

Gridding Algorithm: Minimum Curvature  
Filter: 3 passes-Hanning  
Cell size: 20



**KLONDIKE STAR MINERAL CORP.**  
**INDUCED POLARIZATION SURVEY**  
**ELDORADO PROPERTY COMBINED 1987 & 2006 GRIDS**  
**RECOVERED RESISTIVITY - 50 m BELOW SURFACE**

NTS: 1150/04  
Datum: NAD83  
Job: KDS-06-02-YT  
Drawn by: DH

Mining District: Dawson  
Proj: UTM Zone 7N  
Date: 13 Feb 07  
Appendix G

**AURORA GEOSCIENCES LTD.**

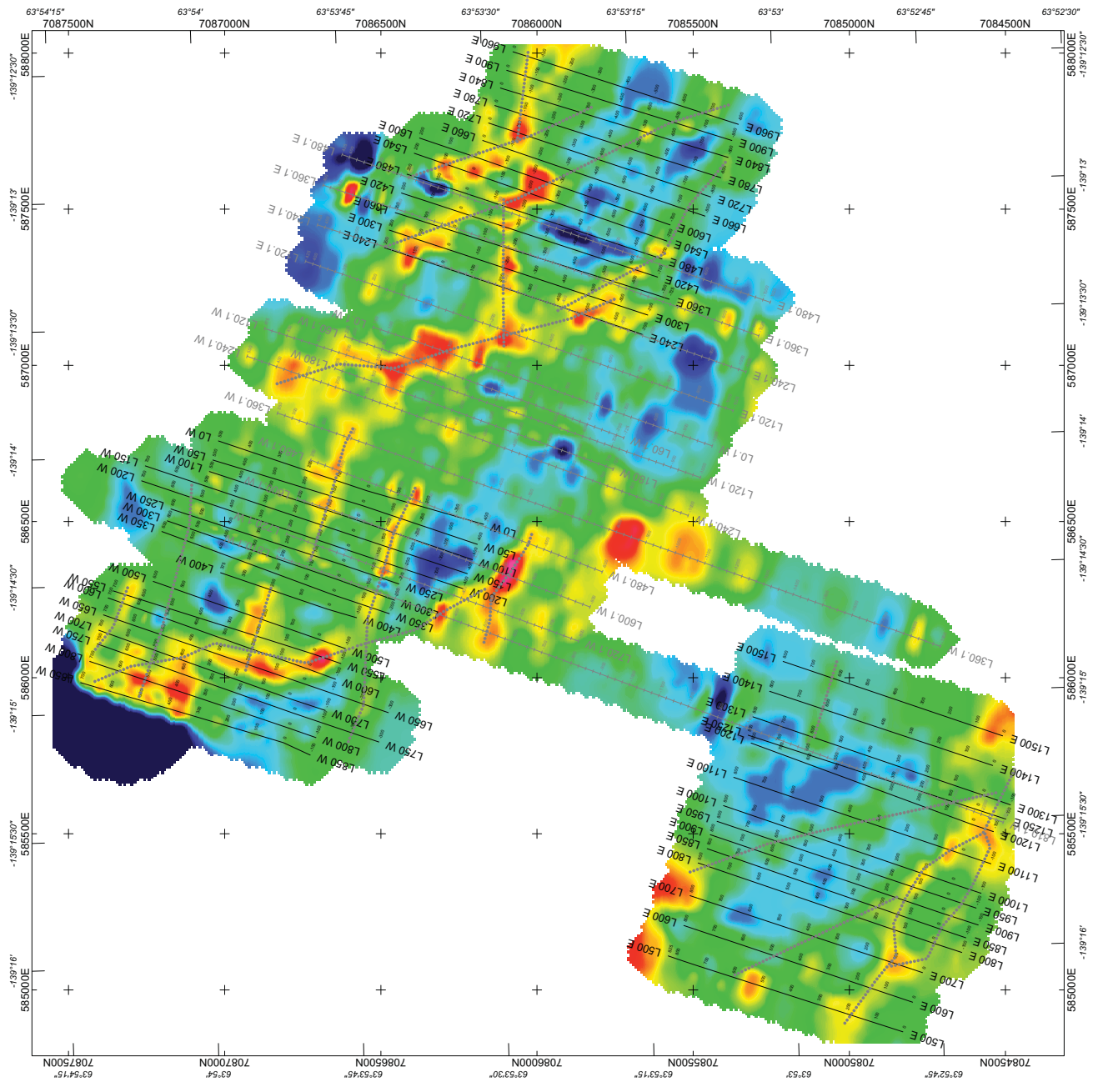


Figure 31

*- The Lone Star West grid has had a number of holes drilled on the eastern edge of the grid, but none into any of the larger chargeability anomalies. The character of the chargeability on the grid is very discontinuous with most of the highest apparent chargeability data not being well represented by the model. Target E shows proximal elevated chargeability coincident with convergent conductivity trends. This is a recommended secondary drill target.'*

The subsequent detailed mapping over the Lone Star area by Seymour Iles and Ethan Allen (Figs. 20 & 21) indicated that NW trending resistivity anomalies likely follow faults of late D<sub>4</sub> or D<sub>5</sub> age. Chargeability anomalies are thought to correlate with the pyritic schists and are therefore very valid exploration targets.

The original Walcott (1987) IP survey crossed the spur between Gay Gulch and Oro Grande with one extended line (810W). A weak chargeability anomaly was detected close to, but perhaps not coincident with a region of gold in soil geochemical anomaly and the portion of trench 06-06 (the west end) where anomalous gold was identified as the 'JF' zone. Further trenching to the west performed in 2007 did not cover the anomalous region and this is a target for the 2012 work.

## GEOCHEMISTRY: SOIL SAMPLING

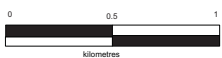
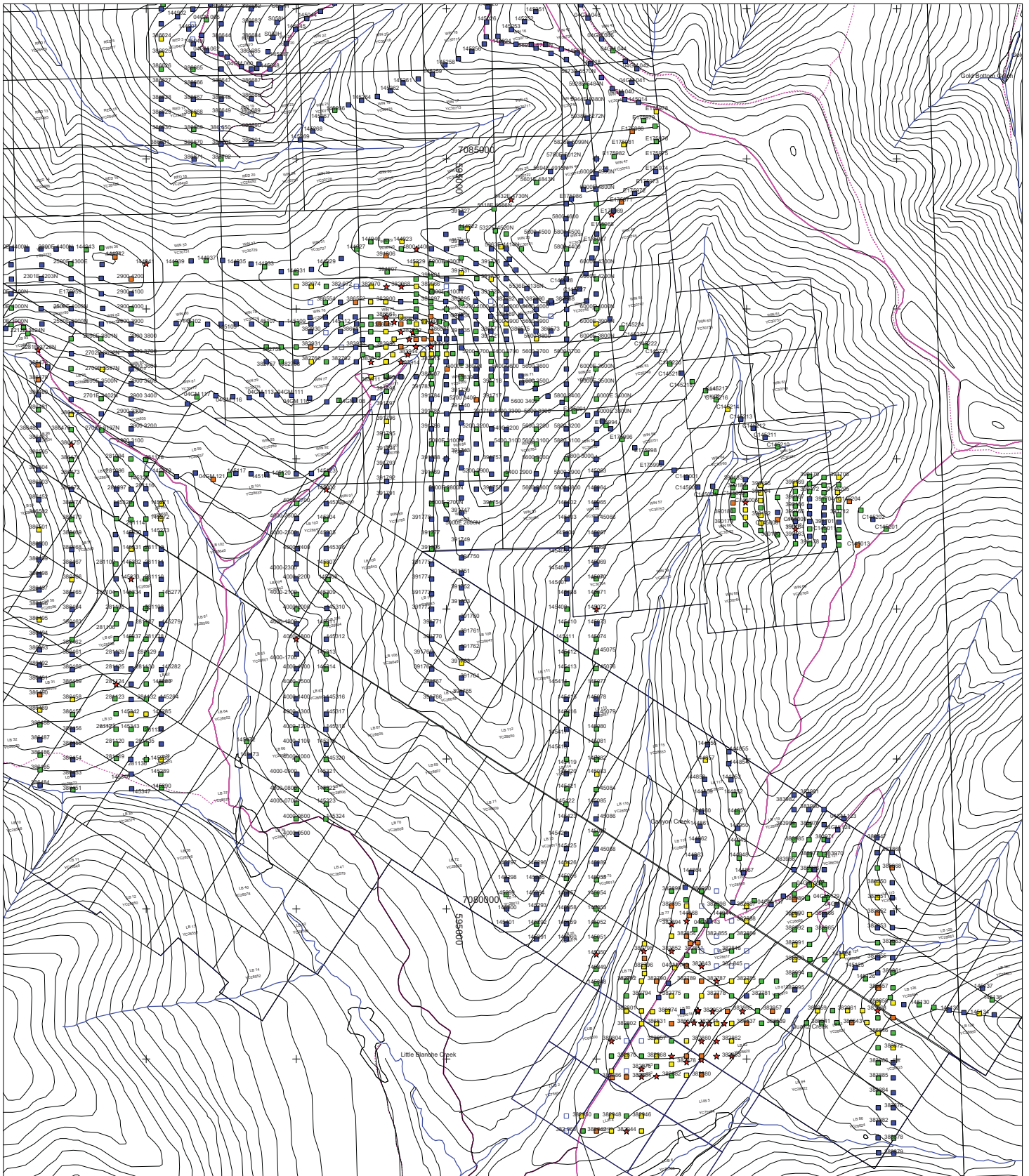
### Eldorado Creek

A soil sampling grid was laid out between Gay Gulch and the upper part of Eldorado Creek, which covered the 'JF zone', as well as extending well to the east. Sampling was from a comparatively shallow ( $\leq 1$  metre) depth. Gold geochemical anomalies are concentrated around that zone, but scattered anomalous values were obtained over a 500 x 500m region to the south. Five reverse circulation drill holes had been drilled in the area by Kennecott (93LS15-19) and these encountered highly anomalous gold values (to 0.17 g/t). The shallow depth of soil sampling on the lower slopes of the Eldorado valley likely has resulted in the 'spotty' distribution of significant

analyses. Further deeper soil samples are warranted, together with an evaluation of historical hand-dug trenches in the region.

### Southeast Part of the Claims

The SE portion of Klondike Star's claim block (WIN claims and the LB-LLIB claims at Quartz Creek) were covered with a soil sampling grid, which was largely completed by the end of the 2007 season. One prominent gold-in-soil anomaly was identified on the WIN claims at the head of Little Blanche creek (Fig. 32) and a pyritic, mafic schist unit that showed anomalous gold on its upper and lower contacts was mapped in the upper Quartz Creek valley (Figs. 32, 33). This unit coincides with a soil geochemical anomaly. These prospects have yet to be followed up.



## Regional Soil Geochemistry 2008 Win, Red, LLIB & Lb Claims

23 Feb. 2009



### Au Value Legend

- Au between 0 and 3.2 ppb
- Au between 3.3 and 7.9 ppb
- Au between 8 and 15.9 ppb
- Au between 16 and 27.9 ppb
- ★ Au greater than 28 ppb

### Roads

- Roads
- Trails

### Quartz Claims Klondike Star Mineral Corp.

- Quartz boundary
- Lonestar
- Quartz boundary
- Bonanza
- Quartz Boundary
- Dominion
- Quartz Boundary Indian River

Figure 31







## 10. DRILLING

### 2005 LONE STAR CONFIRMATION

In 2005 some 27 diamond holes (4831metres total) were drilled over the Lone Star area to both fill in gaps in the Arbor-Kennecott drilling and to extend the area of known mineralization. The decision to use HQ coring was made to ensure the largest possible sample size for assay. A summary of intersections is given below:

The first pair of drill holes were sited 20m west of the Boulder Lode opencut. They were angled at -50° and -70° to the SSW respectively. Hole 1 intersected schist for its length and showed little gold mineralization. The steeper angle hole 2 intersected quartz muscovite schist with frequent intervals of ‘spots’, which are 2-5mm sized patches of chlorite and carbonate. In some cases these appear to have been formed by replacement of feldspars. This spotted interval correlates approximately with the mineralized section of the hole from 52 to 96m and may represent a significant alteration zone.

Hydrothermal alteration is also indicated by the frequent occurrence of tourmaline observed (microscopically) in specimens from the upper part of LS05-01. Assays of samples from 05-02 gave results of up to 6.40g/t over 1m (see summary in Table 2).

Pairs of holes angled generally at 50° and 70° were then drilled in ‘fences’ at 50m intervals along a WNW trend to follow the Lone Star strike. Mineralization was encountered in the upper 50m of LS-03 and 100m of LS-04, where grades of up to 3.85g/t over 1m were obtained from the latter hole. That mineralization was found in both quartz muscovite schist and micaceous quartzite. The mineralized quartzite section was observed to contain quartz veins, some of which showed sulphide mineralization (chalcopyrite, galena, sphalerite, bornite and tetrahedrite-tennantite in vughs). Both foliaform and obviously discordant veins are recorded and it is likely that the latter veins are the source of the gold. There is no direct correlation between sulphide occurrence and gold grade.

Holes LS-05 and -06, 100m WNW of the first section encountered anomalous gold in their upper 70m, with ore-grade intersections only over 1m intervals. The mineralization in part may correlate with ‘semi-discordant’ cm-scale quartz veins. The

next 'fence' of holes -07 and -08 intersected some ore-grade intervals (up to an individual 1m interval of 12.81g/t) in the quartz muscovite schist and demonstrated a sharp cut-off in mineralization once the micaceous quartzite was encountered. To the south on the same section holes LS-26 (vertical) and LS-27 (-70°) gave promising assays (to an average of 1.67g/t over 61.7m in hole -27: see Table 1). To the north of holes -7 and -8 the pair LS-24 and -25 also yielded a few 1m intersections up to 4.12g/t.

The section line 200m from the first that includes holes LS-09 and -10 yielded mineralized intervals of over 10m in the upper 25m of each. Visible gold was found in core from LS-09, 37.28m and 82.50m (Figs. 22 & 26) either in schist at the margin of a quartz vein or in discordant veins. Dolomite alteration as mm-scale crystals is found in the mineralized section of hole -09. Hole -10 also produced mineralization from 68-79m (11.0m of 0.99g/t). The next 50m section line (holes LS-11 and -12) also produced ore grade intersections in the upper part of the holes, notably 44m of 0.84g/t in hole -12. As noted above (hole -5), the quartzite in the lower part of the holes was barren.

#### NW Extension

The drill section LS-13 and -14 continued the fence of holes from the Lone Star to the NW. These holes produced short intersections of higher grade material e.g., 3.15m of 3.70g/t in -13, as well as visible gold in a rhodochrosite vein at 40.2 m. Holes LS-16 and -17 were stepped to the north of the previous line of drill sections. Although assays from these two holes were not spectacular (up to an average of 11m at 0.46g/t in -16), visible gold was recorded in discordant quartz veins at 60.76 and 73.75m and included in a pyrite crystal at 82.5m in LS-16 (Fig 26). Hole LS-16 was the only hole in which extensive biotite was observed, from 5.9m to 122.3m. Recognition of biotite in this hole was possible with hand lens during logging (and confirmed by petrography, but elsewhere due to the frequency of sampling for thin section preparation, may have been missed). Tourmaline was also seen in LS-16 at 122.3m, indicating some hydrothermal alteration.

## SE Extension

To the SE of the Boulder Lode opencut holes LS-19 to 22 were drilled to investigate grades in that direction along the Lone Star trend. Some significant low grade intersections resulted e.g., 31.4m of 0.72g/t in hole -22. That area proved to be difficult drilling, so it is likely that with improved techniques with future drilling some considerable grade might be developed in this direction.

## Other 'zones' in the Eldorado Area

Three holes were drilled at the Veronika zone and two at 27 Pup. These five holes gave fairly disappointing results.

**TABLE 2 - 2005 SIGNIFICANT INTERSECTIONS**

HOLE No.	Azimuth	DIP	Total DEPTH (m)	From metres	To metres	Interval metres	GOLD grams/tonne
Lone Star Zone							
05-LS-01	200	-50	153.92	11.89	12.80	0.91	4.73
05-LS-02	200	-70	185.01	34.00	96.55	62.55	1.14
including				34.00	40.00	6.00	5.46
including				52.00	61.00	9.00	1.41
including				67.00	74.00	7.00	1.74
including				80.00	81.00	1.00	6.40
including				95.00	96.55	1.55	4.66
05-LS-03	200	-50	152.40	18.10	48.20	30.10	0.73
including				22.86	26.50	3.64	1.75
including				36.05	39.05	3.00	2.85
05-LS-04	200	-70	188.06	25.00	99.00	74.00	0.35
including				44.00	45.00	1.00	3.16
including				85.00	86.00	1.00	3.85
05-LS-05	200	-50	153.92	20.10	39.90	19.80	0.36
including				20.10	21.10	1.00	1.39
05-LS-06	200	-70	178.92	71.10	72.00	0.90	4.72
05-LS-07	200	-50	153.92	11.00	11.50	0.50	1.64
and				18.00	39.00	21.00	0.29
including				22.00	22.50	0.50	1.93
including				35.00	36.00	1.00	2.49
and				60.00	68.70	8.70	1.85
including				60.00	61.00	1.00	12.81
05-LS-08	200	-70	181.97	24.00	26.00	2.00	0.66
				61.00	62.00	1.00	1.52

05-LS-09	200	-50	150.88	13.18	23.75	10.57	1.23
including				21.10	22.10	1.00	6.90
and				36.15	37.85	1.70	9.10
including				36.56	36.71	0.15	32.79
and				78.65	88.50	9.85	0.40
including				79.65	80.15	0.50	1.94
05-LS-10	200	-80	180.75	2.00	7.00	5.00	0.94
including				4.00	5.00	1.00	3.53
and				14.00	24.00	10.00	1.47
including				19.00	23.00	4.00	3.18
and				49.00	50.00	1.00	2.45
and				68.00	79.00	11.00	0.99
including				69.00	70.00	1.00	3.70
and				115.00	115.80	0.80	1.98
05-LS-11	200	-50	153.92	6.40	10.50	4.10	2.26
and				28.00	34.00	6.00	0.65
and				83.60	84.60	1.00	2.48
05-LS-12	200	-80	181.97	20.00	21.00	1.00	6.25
and				37.00	81.00	44.00	0.84
including				37.00	43.00	6.00	1.62
including				61.00	69.40	8.40	2.74
including				63.00	64.00	1.00	10.89
and				107.00	108.00	1.00	2.23
05-LS-13	200	-50	163.98	38.00	40.40	2.40	1.60
including				40.00	40.40	0.40	4.37
and				65.50	66.00	0.50	1.43
and				72.50	75.65	3.15	3.70
including				73.35	74.00	0.65	16.96
05-LS-14	200	-80	181.97	8.00	17.00	9.00	0.15
and				28.00	37.00	9.00	0.87
including				28.00	28.50	0.50	10.22
and				46.70	53.00	6.30	0.28
and				59.16	60.05	0.89	3.45
and				80.00	80.50	0.50	1.07
05-LS-15	~	-90	160.63	0.00	24.00	24.00	2.10
including				9.00	23.00	14.00	2.79
including				22.00	23.00	1.00	13.43
and				32.00	48.00	16.00	0.37
05-LS-16	~	-90	150.27	60.00	88.00	28.00	0.23
including				60.60	61.00	0.40	2.23
including				68.75	76.00	7.25	0.48
and				121.00	132.00	11.00	0.46
including				130.00	130.40	0.40	3.59
05-LS-17	200	-50	170.69	32.00	40.00	8.00	0.28
and				54.00	57.50	3.50	6.79
including				55.00	55.60	0.60	38.57
05-LS-18	~	-90	153.92	14.50	16.70	2.20	0.63
and				85.90	91.00	5.10	0.78

	including			85.90	86.90	1.00	3.52
	and			120.90	123.40	2.50	1.06
	including			121.80	122.40	0.60	2.96
05-LS-19	~	-90	151.49	63.25	70.00	6.75	0.30
	and			107.20	111.55	4.35	0.53
	and			125.05	148.20	23.15	0.55
	including			125.05	127.55	2.50	1.32
	including			138.55	139.55	1.00	1.90
05-LS-20	183	-50	160.02	4.88	12.10	7.22	0.13
	and			53.34	84.00	30.66	0.17
	and			93.00	103.00	10.00	0.46
	including			102.10	102.60	0.50	4.88
	and			127.00	141.10	14.10	0.43
	including			133.50	134.20	0.70	2.92
05-LS-21	~	-90	163.07	56.50	84.40	27.90	0.13
	and			122.50	156.25	33.75	0.52
	including			137.00	137.90	0.90	3.90
	including			142.10	142.80	0.70	4.60
05-LS-22	210	-50	150.88	15.00	16.00	1.00	1.91
	and			29.60	61.00	31.40	0.72
	including			49.35	53.00	3.65	4.73
	and			110.00	134.40	24.40	0.62
	including			116.60	117.80	1.20	2.06
	including			133.80	134.40	0.60	11.96
05-LS-23	~	-90	132.89	53.30	54.00	0.70	1.37
	and			69.60	85.30	15.70	1.91
	including			76.50	77.50	1.00	1.98
	including			82.50	83.50	1.00	24.05
	and			114.00	132.89	18.89	0.26
	including			118.00	119.00	1.00	3.44
05-LS-24	200	-90	124.05	10.00	11.00	1.00	4.13
	and			85.00	106.00	21.00	0.39
	including			95.40	98.00	2.60	1.51
	including			105.00	106.00	1.00	1.76
05-LS-25	200	-70	122.83	47.00	63.60	16.60	0.15
	including			48.00	48.95	0.95	1.02
	including			63.00	63.60	0.60	1.25
05-LS-26	200	-90	124.05	4.26	61.50	57.24	1.03
	including			13.00	57.50	44.50	1.28
	including			20.00	32.00	12.00	1.99
	including			30.00	31.00	1.00	6.50
	including			41.50	50.90	9.40	1.98
	including			49.85	50.90	1.05	10.45
05-LS-27	~	-70	141.73	4.26	66.00	61.74	1.67
	including			12.00	61.00	49.00	2.01
	including			12.00	19.00	7.00	2.57
	including			38.00	61.00	23.00	3.23
	including			38.00	39.00	1.00	13.41

including				54.00	55.00	1.00	22.15
Veronika Zone							
05-VZ-28	234	-50	62.48			0.00	nil
05-VZ-29	234	-70	121.01	69.40	70.40	1.00	1.12
27 Pup Zone							
05-27P-30	231	-70	117.96			0.00	nil
05-27P-31	231	-90	154.53	152.00	153.00	1.00	1.80
Veronika Zone							
05-VZ-32	240	-70	106.38	74.30	83.00	8.70	0.11
including				80.40	81.00	0.60	0.50

## 2006 DRILLING

In 2006 a further 17 holes (2892m total) were drilled at Lone Star, which identified considerable low-grade zones of mineralization. In addition, three holes were drilled at the Nugget zone (Fig. 34) and three in O'Neil Gulch, the latter holes penetrating the Lone Star thrust and indicating weak mineralization in the lower plate of the thrust stack. At the Nugget Zone the holes assayed up to 96g/t over 1m (Hole 06-NZ-02) and away from the veins the schist has a uniformly low background, except for one 2m intersection.

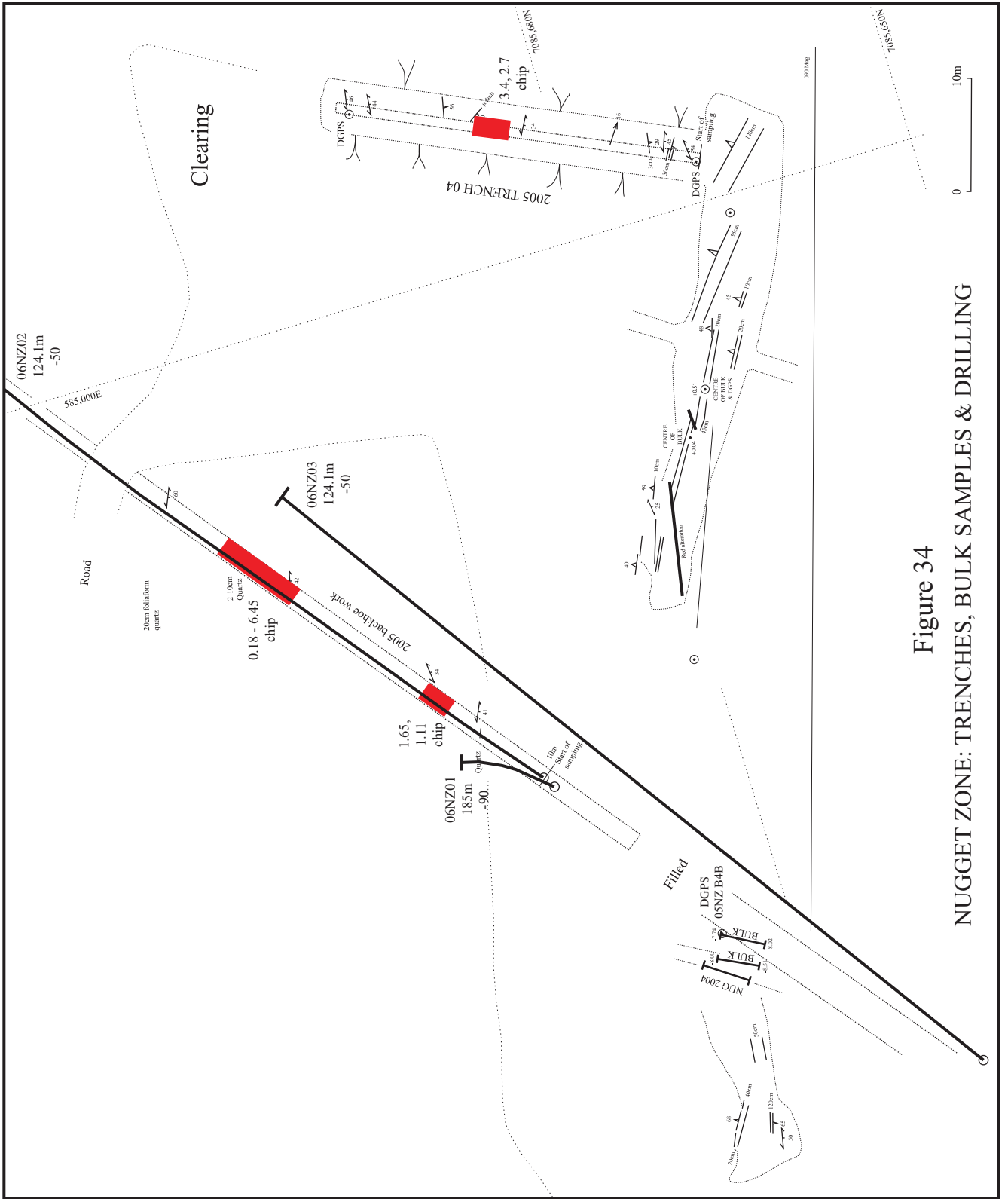


Figure 34  
 NUGGET ZONE: TRENCHES, BULK SAMPLES & DRILLING





TABLE 3. SUMMARY OF 2006 SIGNIFICANT INTERSECTIONS							
HOLE No.	Az	Dip	TOTAL DEPTH	FROM Metres	TO Metres	Interval Metres	GOLD g/t
<b>NUGGET ZONE</b>							
<b>06NZ01</b>		90	185.01	6.00	7.00	1.00	1.42
and				32.25	45.50	13.25	0.14
and				89.00	95.00	6.00	1.31
Including				90.50	91.25	0.75	4.54
<b>06NZ02</b>	65	50	124.05	28.90	32.15	3.25	27.50
including				28.90	29.80	0.90	98.68
and				37.65	40.65	3.00	0.28
and				55.00	63.50	8.50	0.34
<b>06NZ03</b>	65	50	124.05	23.60	28.50	4.90	5.89
including				25.60	26.50	0.90	30.15
<b>LONE STAR ZONE</b>							
<b>06LS04</b>	200	80	130.15	37.00	47.00	10.00	0.14
and				60.00	92.00	32.00	0.40
including				81.00	82.00	1.00	6.61
and				107.00	113.00	6.00	0.11
<b>06LS05</b>	200	60	114.3	7.00	13.00	6.00	0.62
including				9.00	11.50	2.50	1.25
and				78.00	85.00	7.00	0.32
including				78.00	79.00	1.00	1.12
and				115.00	117.35	2.35	0.33
<b>06LS06</b>	200	80	127.1	12.00	123.00	111.00	0.27
including				18.00	32.00	14.00	0.52
including				28.00	29.00	1.00	3.09
including				41.00	95.80	54.80	0.36
including				50.15	50.65	0.50	7.50
<b>06LS07</b>	200	60	130.15	12.00	128.00	116.00	0.27
including				12.00	41.00	29.00	0.75
including				12.00	14.00	2.00	2.07
including				28.00	30.10	2.10	4.03
including				40.00	41.00	1.00	4.52
including				64.00	65.00	1.00	1.05
including				100.00	101.00	1.00	1.40

<b>HOLE No.</b>	<b>Az</b>	<b>Dip</b>	<b>TOTAL DEPTH</b>	<b>FROM Metres</b>	<b>TO Metres</b>	<b>Interval Metres</b>	<b>GOLD g/t</b>
<b>06LS08</b>	200	80	130.15	7.00	110.90	103.90	0.29
including				24.70	25.70	1.00	1.40
including				52.20	52.70	0.50	2.83
including				58.00	60.00	2.00	1.43
including				107.00	109.00	2.00	3.40
<b>06LS09</b>	200	60	130.15	11.00	122.50	111.50	0.20
including				33.10	34.00	0.90	2.61
including				42.00	43.00	1.00	1.28
including				86.00	87.00	1.00	2.71
including				93.40	94.50	1.10	2.06
including				120.00	121.00	1.00	1.53
<b>06LS10</b>	-	90	175.87	6.00	11.20	5.20	0.20
and				48.60	54.00	5.40	0.41
and				98.00	173.00	75.00	0.26
including				113.00	114.00	1.00	10.75
<b>06LS11</b>	-	90	160.63	45.00	56.00	11.00	0.45
and				142.25	152.00	9.75	0.23
including				145.50	146.20	0.70	1.20
<b>06LS12</b>	-	90	130.15	74.00	85.00	11.00	0.33
including				75.00	76.00	1.00	1.66
and				99.00	102.00	3.00	0.75
<b>06LS13</b>	-	90	175.87	24.00	25.00	1.00	1.16
and				45.00	75.00	30.00	0.34
including				50.00	51.00	1.00	5.93
and				94.00	100.00	6.00	1.52
including				96.00	97.00	1.00	6.10
and				134.00	149.00	15.00	0.14
<b>LONE STAR NW EXTENSION - O'NEIL GULCH</b>							
<b>06ON14</b>	-	90	163.68	88.00	92.00	4.00	0.19
<b>06ON15</b>	200	60	32.61	11.00	28.00	17.00	0.36
Including				16.85	24.50	7.65	0.65
<b>06ON16</b>	237	60	26.52	12.80	26.52	13.72	0.66

HOLE No.	Az	Dip	TOTAL DEPTH	FROM Metres	TO Metres	Interval Metres	GOLD g/t
<b>LONE STAR ZONE</b>							
<b>06LS17</b>	185	80	133.2	22.40	25.20	2.80	0.72
and				49.00	52.00	3.00	0.67
and				94.00	94.70	0.70	1.32
and				111.80	115.60	3.80	0.81
Including				112.50	113.50	1.00	2.01
<b>06LS18</b>	185	50	157.58	58.00	59.00	1.00	0.52
and				102.00	103.00	1.00	0.74
and				124.00	133.00	9.00	0.21
<b>06LS19</b>	—	90	124.05	47.00	50.80	3.80	0.20
				75.00	79.30	4.30	0.26
				97.00	100.00	3.00	2.18
				108.00	110.00	2.00	1.09
<b>06LS20</b>	—	90	124.05	10.80	122.10	111.30	0.17
Including				71.00	72.00	1.00	1.16
Including				90.00	110.00	20.00	0.39
Including				93.00	94.00	1.00	1.81
<b>06LS21</b>	200	50	154.84	14.00	26.00	12.00	0.38
Including				22.38	26.00	3.62	1.01
and				68.00	69.00	1.00	2.07
and				115.00	146.00	31.00	0.12
<b>06LS22</b>	—	90	81.38	40.00	68.20	28.20	0.16
Including				67.70	68.20	0.50	1.25
<b>06LS23</b>	200	50	56.39	6.00	46.00	40.00	0.46
Including				23.70	25.90	2.20	3.79
Including				23.70	24.50	0.80	8.40

Diamond drilling during 2007 was limited to five holes in the Buckland area (Figs. 35 & 36). These were sited along a ‘fence’ to intersect the whole width of the ‘zone’ as indicated by historical trenching. The topographically lowest holes 1 and 2 did not intersect mineralization. Hole 07-BU-3 intersected 2.06g/t over 21m from 6.0 to 27m depth, with rare metre intersections of  $\leq 0.13$ g/t below. Hole 07-BU-4 intersected

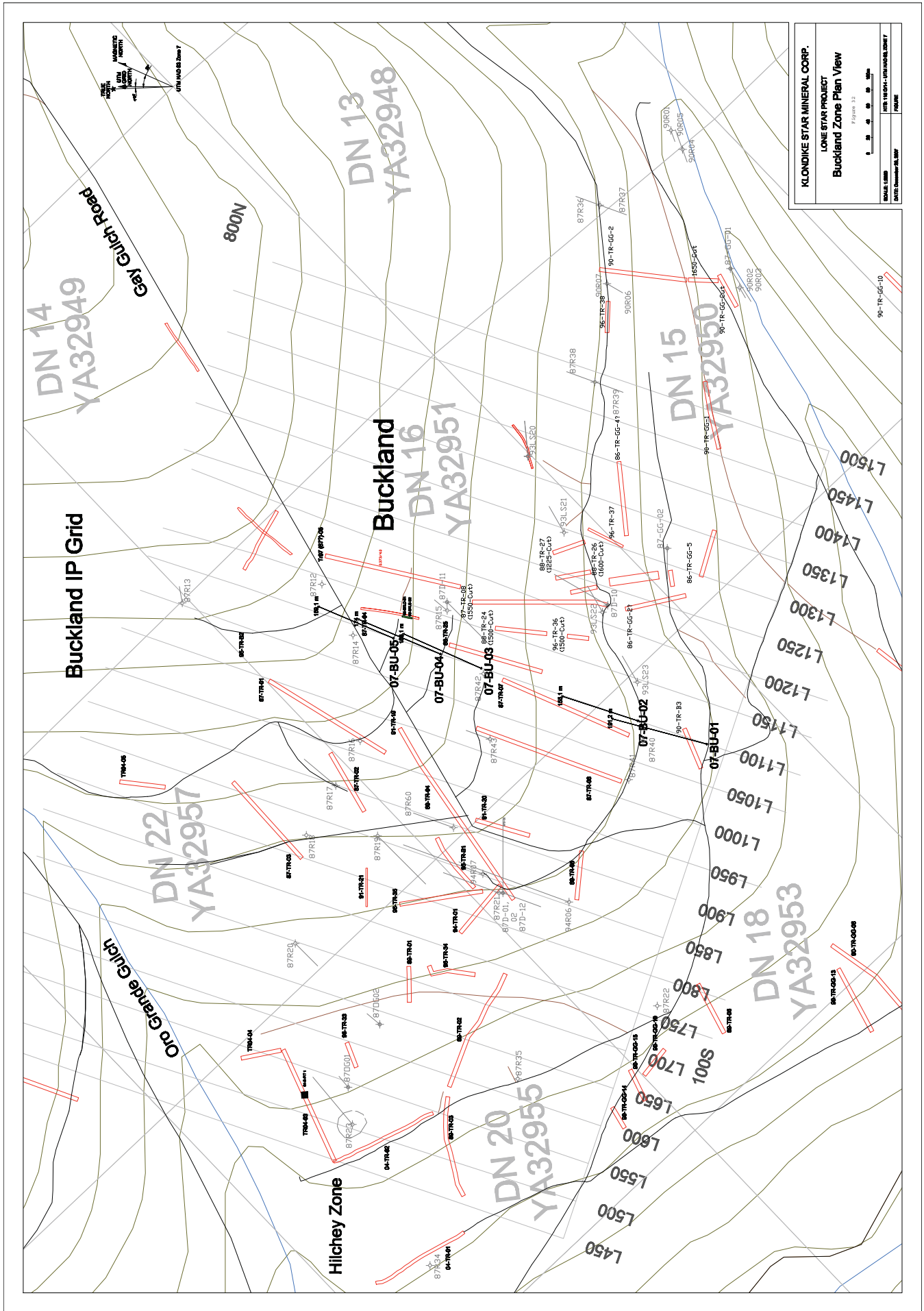


Figure 35



mineralization from 37.0 to 53.0m (1.287g/t over 21m, including 8.531g/t over 2m). An assay of 0.62g/t over 1m at 129m depth was the highest value for the remainder of the hole. Drillhole 07-BU-05 encountered sporadic low-grade ( $\leq 0.287\text{g/t}$ ) metre-width intervals down to 52m. The interval 52.0-57.0 m assayed 0.369g/t and then from 80.0 to 86.0m an average of 0.640g/t was obtained. Occasional 1m intervals giving  $\leq 0.836\text{g/t}$  were intersected to 143m, with background values then to the end at 162m. Correlation between mineralized intervals in the latter 3 holes is uncertain: they may define a shallow-dipping structure or each might represent a separate steeply-dipping mineralized zone.

Rotary percussion drilling was tried over the Pioneer area in 2007 (Figs. 37 & 38). 5 holes of 8” diameter with casing and 6” without casing were completed. Hole 1, at the ridge crest was barren but hole 2 intersected 0.361g/t over 19.8m, including 9.1m of 0.625g/t; hole 3 showed individual 1.5m sections of  $\leq 0.51\text{g/t}$ ; hole 4 gave 0.433g/t over 3.05m (which includes one of the Eocene porphyry dykes), 0.304g/t over 4.6m and 0.395 g/t over 6.1m. Hole 5 gave intersections of 1.54g/t over 15.2m and 0.96g/t over 6.1m, the second interval being right at the bottom of the hole, so that intersection is open-ended at depth. The average of assays for this complete vertical hole was 0.32 g/t over 76.2m.

<b>Lone Star Project 2007 Percussion Drill Hole Summary</b>									
<b>COLLAR - RTK READINGS HIGHLIGHTED</b>					<b>DATES</b>		<b>ACTUAL DEPTH</b>		<b>CASING DEPTH</b>
<i>HOLE NAME</i>	<i>DIP</i>	<i>UTME</i>	<i>UTM N</i>	<i>ELEV</i>	<i>START</i>	<i>FINISH</i>	<i>ft</i>	<i>m</i>	<i>ft</i>
RC07-PZ-1	-90	587405.23	7085424.06	1027.4688	22-Aug-07	28-Aug-07	320	97.5	30
RC07-PZ-2	-90	587417.43	7085471.46	1023.3528	30-Aug-07	31-Aug-07	350	106.7	70
RC07-PZ-3	-90	587432.57	7085524.04	1013.8661	3-Sep-07	4-Sep-07	260	79.2	10
RC07-PZ-4	-90	587632.31	7085915.5	889.7933	6-Sep-07	8-Sep-07	300	91.4	130
RC07-PZ-5	-90	587533	7085899	900	9-Sep-07	11-Sep-07	265	80.8	110
RC07-LS-6	-90	587328	7086066	920	13-Sep-07	13-Sep-07	220	67.1	70

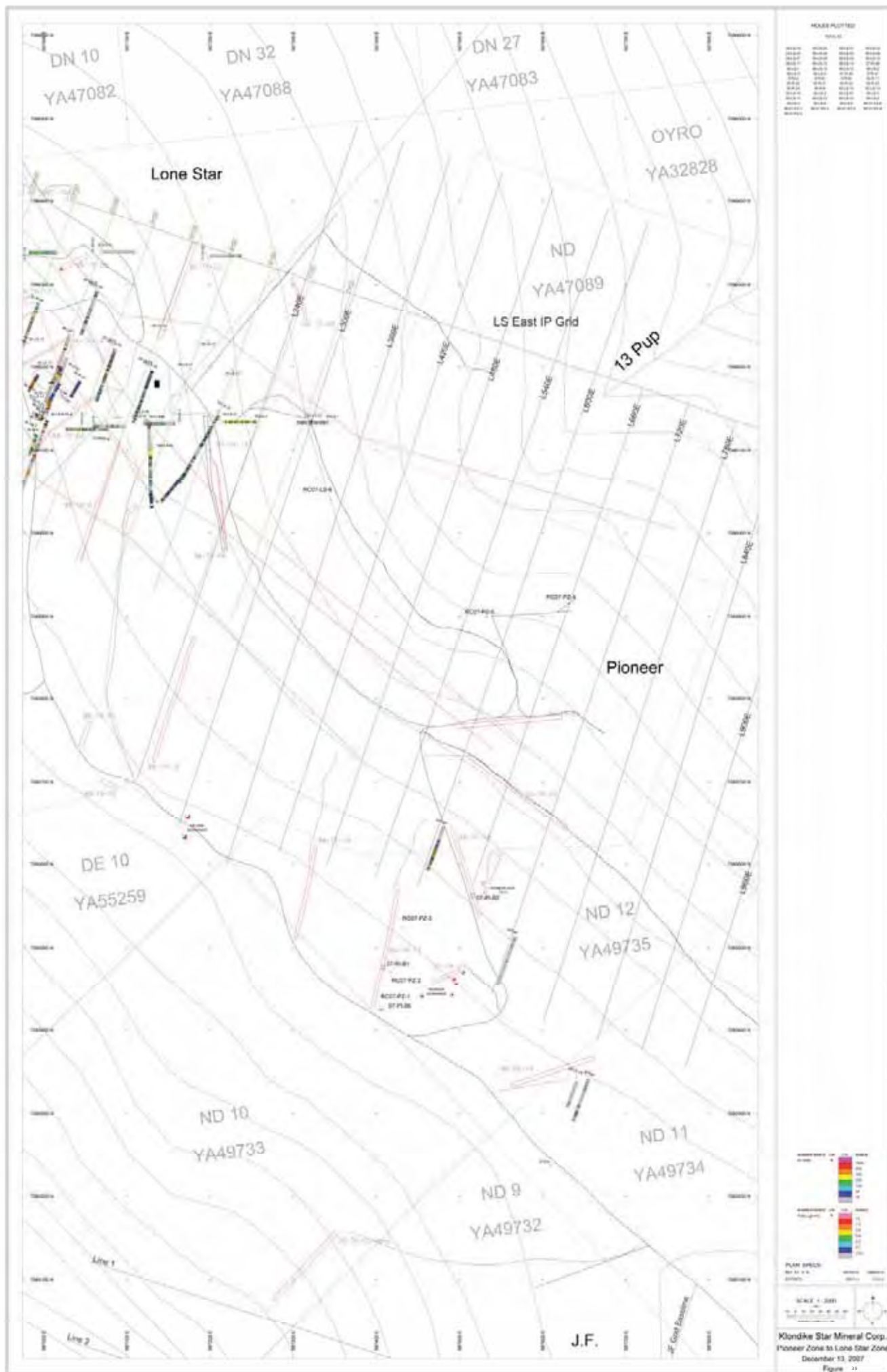


Figure 37





## **11. SAMPLE PREPARATION, ANALYSIS, SECURITY (2004-2007)**

All samples were delivered to the Eldorado Creek core shack, where they were sorted and packed into poly-weave sacks which were labelled according to sample sequence then sealed with a zip-tie. The sacks were delivered to Kluane Freight, packed onto pallets, wrapped, and transported then to the laboratory. The laboratory carried out crushing, pulverizing and splitting of rock samples prior to analysis.

2005: Soil geochemical and trench rock chip samples were analysed at Acme Labs using the 1DX package (aqua regia digestion, ICPMS analysis). Core samples were initially analysed using the 1DX package and any samples yielding >1 ppm were re-assayed using fire assay on a 30g sample. Bulk chips were fire assayed, using 2 assay-ton samples.

2006: Acme Labs were again used with initial analysis by the 1DX package and fire assay of 1 assay-ton splits at minus 150 mesh for significant intervals.

2007: EcoTech labs performed fire assay on 30g samples of the split and pulverized samples of core. Screen-metallic assay was included.

## **12. DATA VERIFICATION**

Samples sent to the laboratory were analysed alongside in-house standards and blanks with repeat analyses. Where initial geochemical analyses of rocks indicated ore grade values repeat analysis by fire assay was performed. For the mill concentrates and tailings duplicate samples were submitted.

An audit of all Klondike Star samples is currently being undertaken to verify whether complete data is available.

## 13. MINERAL PROCESSING AND METALLURGICAL TESTING

### BULK SAMPLING

In order to investigate the proportion of coarse free-milling gold that might be present in the various prospects held by Klondike Star a small gravity circuit mill was constructed and operated from 2004-2006. The mill consisted of a reciprocating jaw crusher that fed a roller mill and dumped into a storage hopper. Material from this hopper was weighed in batches and hand loaded into two small, unlined steel ball mills that were designed for easy clean-up. Discharge from the ball mills was passed through a 20-mesh screen and fed by an auger system onto a Deister table for heavy mineral separation. Coarse (flattened) gold was hand picked from the screenings. During the operation of the table the reject material (tailings) was regularly sampled. All equipment was carefully washed down and inspected between runs. The 'black sand' fraction resulting from the table was further cleaned on a laboratory scale Deister table. Total free gold extracted was then weighed on a four-place balance. The heavy mineral fraction ('black sand') from this clean-up process, together with the tailings sample were sent for assay. The resulting fire assays and weighed amount of gold corrected for fineness were used to calculate grade and free-milling recovery. Mill construction and operation was supervised by Don Nelson P. Eng.

#### COMPARISON OF CHIP SAMPLING AND BULK TESTS

##### 310 Vein

The average grade from chip sampling across the vein every 5m (including 20cm of the wall-rock either side of the vein) was 0.48g/t over a 45m length. The bulk sample graded 2.037g/t over the whole 75m that was sampled.

##### Nugget

Bulk samples were obtained from the Nugget zone.

The three trenches cut during 2005 exposed a quartz vein stockwork. Best fire assays obtained from 2m long chip samples in the trenches were 3.54 g/t, 1.16 g/t, 2.10, and 0.35g/t from 94Tr02. The latter three plus the intervening 2m define an interval of 8 m @ 0.92 g/t. Only the northernmost sample interval included significant vein quartz, so it is possible that there is a discrete zone of disseminated gold mineralization at this locality (Fig. 36).

Bulk sampling in 2005 at the Nugget Zone returned the following values for bulk with corresponding chip samples:

BULK SAMPLE	GRADE, g/t	AVERAGE OF CHIP
05-NZ-B4-A	4.55	6.51
05-NZ-B4-B	8.61	4.19
05-NZ-B6-A	1.95	0.31
05-NZ-B6-B	2.65	2.72
05-NZ-B7-A	6.46	4.88

These results represent the highest grades yet obtained from the Lone Star property.

Details of the bulk sampling are given in Table 4.

### Lone Star

Bulk samples were taken from trenches 87-16 and 87-17. Parallel cuts were made for the samples from 87-16 in order to compare grade results in adjacent specimens.

Assay Numbers for Gold concentrates

Sample	Weight kg	Laboratory Table Products								MILL TAILS			TOTAL GOLD		Raw Au g/t
		RAW		HEAVIES			LAB TAILS			Est. kg	g/t Au	mg Au	mg Au	g/t Au	
		Raw Au g	mg pure	Heavies g	Assay No.	Au ppm	mg Au	Tailings kg	mg Au						
ORO NUG	?	1.6527	1239.5	1391	310462	325	452.1	4.6	7.48	not sampled					
VZ-001	2879	1.2782	958.7	2848	310463	93	264.9	3.9	2.47	2872	0.21	603.1	1829	0.64	0.44
05LS-B1-A	4111	5.6137	4210.3	630	310464	>1000	630.0	16.2	0.27	4095	0.67	2722.9	7563	1.84	1.37
05LS-B1-B	3612	0.9779	733.4	1107	310465	352	389.7	7.5	0.94	3603	0.21	738.7	1887	0.52	0.27
				dup.	310482	395	437.3								
05LS-B2-A1	2318	0.4337	325.3	1502	310466	149.5	224.5	11.4	0.10	2305	0.11	242.0	792	0.34	0.19
05LS-B2-A2	2190	0.7606	570.5	774	310467	160.5	124.2	3.1	2.99	2186	0.16	349.8	1047	0.48	0.35
05LS-B2-B1	1792	0.1495	112.1	804	310468	44.7	35.9	6.0	0.30	1785	0.04	62.5	211	0.12	0.08
05LS-B2-B2	1792	0.2791	209.3	414	310469	149.5	61.9	4.3	2.14	1787	0.11	187.6	461	0.26	0.16
05LS-B3-A	2972	0.0299	22.4	693	310470	6.6	4.6	6.5	0.05	2965	0.01	29.6	57	0.02	0.01
?05NZ-B4-1		1.7952	1346.4	1956	310474	222	434.2	4.8	4.56		0.89				
05NZ-B4-A	2787	9.9719	7478.9	4681 (1st)	310471	57.6	269.6			2762					3.58
				1836 (2nd)	310472	454	833.5	18	0.89		1.48	4088.5	12671	4.55	
05NZ-B4-B	2787	20.8125	15609.4	6701	310473	357	2392.3	11.4	4.51	2769	2.16	5981.2	23987	8.61	7.47
05LS-B5-A	2986	1.7794	1334.6	760	310475	141	107.2	2.6	2.13	2983	0.08	238.6	1682	0.56	0.60
05NZ-B6-A	1394	1.9596	1469.7	952	310476	541	515.0	8.3	1.02	1384	0.53	726.8	2713	1.95	1.41
05NZ-B6-B	1394	2.2273	1670.5	3396	310477	241	818.4	5.1	1.29	1385	0.87	1198.1	3688	2.65	1.60
				dup.	310478	225	764.1								
05NZ-B7-A	1891	4.9904	3742.8	1747	310479	598	1044.7	3.2	5.91	1886	3.94	7422.7	12216	6.46	2.64
05DY-B8-A	3584	6.9303	5197.7	1382	310480	>1000	1382.0	17.9	0.10	3564	0.32	1122.8	7703	2.15	1.93
05DY-B9-A	1593	0.2268	170.1	1225	310481	40.5	49.6	5.9	0.66	1586	0.03	39.6	260	0.16	0.14

The 2006 bulk sampling from Lone star, Nugget and Buckland indicated that grades from the Lone Star area varied between 0.11 g/t and 1.41 g/t. The mill results are given in Table 5. 2011 fieldwork has indicated that the samples taken from the east end of trench 87-16 (06-LS-B1 series) may have underestimated gold content due to the sample panel having overlapped a 2-metre wide D<sub>5</sub> brittle fault, which is unlikely to have carried grade. The overall grade calculations indicate that 51% of the gold was free-milling.

2006 Bulk Sampling Program Summary																				
Sample No	Sample Weight kgm	Visible Gold			Finishing Table Heavies			Finishing Table Tailings			Mill Table Tailings			Total Gold		Gold Distribution				
		Au grams	Fine ness	Pure grams	weight kgm	Assay ppm	Au grams	weight kgm	Average ppm	Au grams	weight kgm	Average ppm	Au grams	Au grams	Au/tonne g/t	Visible Au	Finishing Heavies	Finishing Tailings	Mill Tailings	
06-LS-B1-A1	8,145	4.5432	72%	3.271	4.82	308.71	1.488	18.92	5.606	0.106	8121	0.317	2.570	7.436	0.913	44%	20%	1%	35%	
06-LS-B1-A2	5,459	3.0774	72%	2.216	2.69	400.51	1.077	14.99	6.909	0.104	5441	0.361	1.962	5.358	0.982	41%	20%	2%	37%	
06-LS-B1	13,604	7.6206	72%	5.487	7.51		2.565	33.91		0.210	13563		4.532	12.794	0.940	43%	20%	2%	35%	
06-LS-B2	2,918	1.6975	72%	1.222	0.57	717.74	0.409	13.50	6.178	0.083	2904	0.823	2.388	4.103	1.406	30%	10%	2%	58%	
06-LS-B3	3,814	2.1969	72%	1.562	1.19	687.04	0.818	22.22	8.161	0.181	3791	0.461	1.746	4.326	1.134	37%	19%	4%	40%	
06-LS-B4	2,946	1.7825	72%	1.283	1.19	438.72	0.522	17.79	6.639	0.118	2927	0.723	2.115	4.038	1.371	32%	13%	3%	52%	
06-LS-B5	3,392	2.7598	72%	1.987	2.92	282.75	0.826	13.08	5.851	0.077	3376	0.561	1.894	4.783	1.410	42%	17%	2%	40%	
06-LS-B6	3,560	0.6411	72%	0.462	3.57	97.11	0.347	16.48	1.171	0.019	3540	0.157	0.554	1.382	0.388	33%	25%	1%	40%	
06-LS-B7	5,353	0.2974	72%	0.214	2.44	83.15	0.203	35.11	1.140	0.040	5315	0.126	0.667	1.124	0.210	19%	18%	4%	59%	
06-LS-B8	4,946	0.1099	72%	0.079	1.28	43.10	0.055	27.59	0.207	0.006	4917	0.026	0.128	0.268	0.054	30%	21%	2%	48%	
06-LS-B9	5,686	0.2490	72%	0.179	1.22	78.58	0.096	28.70	0.602	0.017	5656	0.060	0.339	0.632	0.111	28%	15%	3%	54%	
06-LS-B10	5,137	0.0203	72%	0.015	1.87	18.60	0.035	31.27	0.430	0.013	5104	0.343	1.751	1.813	0.353	1%	2%	1%	97%	
06-VI-B1	1,900	0.1707	72%	0.123	1.16	633.69	0.735	19.60	4.291	0.084	1879	0.746	1.402	2.344	1.234	5%	31%	4%	60%	
06-VI-B2	5,728	1.6018	72%	1.153	5.44	192.48	1.047	20.35	5.613	0.114	5702	0.456	2.597	4.912	0.858	23%	21%	2%	53%	
06-JAE-B1	2,276	3.0350	72%	2.185	1.87	1186.20	2.218	10.41	20.551	0.214	2264	1.975	4.470	9.087	3.993	24%	24%	2%	49%	
06-JAE-B2	5,728	3.3538	72%	2.415	6.58	152.64	1.004	19.23	9.164	0.176	5702	0.675	3.849	7.444	1.300	32%	13%	2%	52%	
06-NUG-B1	7,558	5.9198	72%	4.262	22.08	48.55	1.072	24.86	2.356	0.059	7511	0.275	2.066	7.459	0.987	57%	14%	1%	28%	
06-BKLD-B1	5,462	1.1638	72%	0.838	8.45	42.07	0.355	16.61	2.698	0.045	5437	0.168	0.911	2.149	0.393	39%	17%	2%	42%	
06-BKLD-B2	6,840	2.1783	72%	1.568	16.30	37.90	0.618	10.17	3.293	0.033	6814	0.436	2.971	5.190	0.759	30%	12%	1%	57%	
OVERALL	86,848	34,7982		25.055				12.925		1.490				34.379	73.849	0.850	33.9%	17.5%	2.0%	46.6%

Table 5. Summary of 2006 Bulk sample tests.

These results indicate that there is some considerable variation in grades obtained from adjacent samples. This reflects the complex distribution of gold at the Lone Star: small-scale structures are likely to control the mineralization, hence adjacent samples would not intersect the same geology. This is a subject for 2012 structural geology research.

## **14. MINERAL RESERVE ESTIMATES**

An estimate of geologically inferred resources was prepared for in-house use by the company (Liverton et al., 2007). This was not a statistically rigorous evaluation and not NI-43-101 compliant, hence it is not reproduced here.

## 15. INTERPRETATION AND CONCLUSIONS

Research into the structural geology of the Klondike Schist by Professor J.K. Mortensen, Professor D. Craw, Dr. R. Chapman and Dr. D. MacKenzie with company geologists has demonstrated that the latest phase of contractional deformation ( $D_4$ ) has controlled emplacement of the auriferous quartz veins in the Klondike. MDRU research into placer and lode gold composition has shown that the source for much of the Bonanza-Eldorado placers is the Lone Star Ridge. The major concentration of gold mineralization on that ridge is found within the felsic member of the Klondike Schist and this mineralization follows the trend of a zone of  $F_4$  folding. These criteria identify the Lone Star to Parnell zone as an important target for exploration. To date only the immediate environs of the Boulder opencut (Lone Star mine) have received close-spaced drilling. The remainder of the trend requires testing by drilling, coupled with further detailed structural analysis and special sampling of specific structures for assay to determine the optimum drill direction within the zone. Cooperative research with the Universities of British Columbia, Leeds and Otago will be beneficial to the understanding of the mineralization in the Klondike.

The various geochemically anomalous regions on the larger claim block are yet to be tested by excavation, sampling for assay or drilling. The whole of the Violet - "310" ridge requires soil geochemistry, trenching and assay and the lower regions of the west side of the Lone Star ridge (27 Pup – Oro Grande) have not been sufficiently explored.

A continuing exploration programme is warranted to cover the whole of the claim block as well as continuing efforts on the Lone Star ridge.

## 16. RECOMMENDATIONS

### PROPOSED EXPLORATION 2012

The following work is recommended:

#### LONE STAR RIDGE

(Lone Star/Boulder to Parnell and prospects on the SW side: (Nugget, Buckland, 27 Pup-Dysle)

The 2005-2007 work by Klondike Star Mineral Corp. concentrated on the immediate Lone Star area in an attempt to create an inferred resource. Further exploration work is warranted. The on-strike extension of the mineralized D<sub>3</sub>-D<sub>4</sub> deformation zone continues along the SE side of the ridge to the Parnell 'zone', immediately below Eldorado Dome. Prospecting of this trend should be by three methods:

- (1) further trenching below the Pioneer adit and below the Parnell workings;
- (2) diamond drilling at the twelve sites proposed in the 2007 Assessment Report, with priority to those at the Pioneer (table follows);

I.P.GRID	UTM Coords.		Az	DIP	DEPTH		
L360E	587306	7085882		-90	150	\$	36A
	587356	7086036		-90	200	\$	36B
L420E	587352	7085832		-90	150	\$	42A
	587400	7085972		-90	200	\$	42B
L480E	587404	7085790		-90	200	\$	48A
	587444	7085910		-90	200	\$	48B
	587494	7086060 approx.		-90	200		48C need access road
L540E	587458	7085760	200	-60	200	\$	54A
	587536	7085990	200	-60	200	\$\$	54B need access road - center of anomaly A
L600E	587508	7085738	200	-60	250	\$\$	60A
	587550	7085866	200	-60	300	\$\$	60B
	587580	7085950	200	-60	200	\$	60C need access road

The \$\$ symbol indicates higher priority.

(3) deep auger drilling with rock sampling equipment across the Pioneer trend. Drilling from Lone Star to Pioneer may allow the development of an much increased inferred resource.

Concurrent research should be to:

- (1) carry out very detailed structural mapping of the outcrop-scale brittle faults and joints in the existing Lone Star exposures and channel sampling across these to indicate where gold might be concentrated on a mesoscopic scale and to map orientations of the various fold generations at a scale of, say, 1:1000. It is quite possible that the minor limonite-pyrolusite stained fractures and joints could carry significant grade. If so, then the friable nature of this material would lead to loss when past chip sampling was carried out and would explain the tendency for surface sampling to underestimate grade. and;
- (2) to re-sample drill core from at least one of the 2005 Lone Star drillholes (05-LS-2 or 05-LS -09, which already have some data) at 1metre intervals for whole-rock analysis to investigate the possibility of using major or trace element compositions to develop a geochemical stratigraphy in the felsic schists that may be mapped along strike;
- (3) to clean out the Boulder opencut to allow detailed mapping and sampling to investigate gold distribution in the schist.

In the Buckland area two prospective trends were indicated by trenching and drilling: the original “Buckland shear zone”, that passed through trenches 95-Tr-B1 and 91-Tr-20 which has been demonstrated to be a D<sub>4</sub> deformation zone and the mineralization encountered in diamond drill holes 07-BU-3 to 5, which was correlated with trench assays (2007 Assessment report Fig. 33 or 2011 Report Fig. 36) as a shallow NE-dipping zone of quartz veins much like the Veronika system. The first mineralized zone is indicated to be steeply dipping and only 6 metres true thickness of 1.41 g/t average (2011 Report Fig. 23). The second zone offers greater extent. To investigate this cleaning out and channel sampling of existing trenches would develop further reliable grade. Further diamond drilling of two more step-out holes to the NNE of 07-BU-05 (50 and 100 metres from that hole and to 150 and 200 metres depth respectively) would confirm the interpreted shallow dip of the zone. If that attitude is confirmed then surface excavation can be carried out to intersect the outcrop downhill.



At the Nugget 'zone' continuation of quartz veining to the ESE of the 2005 excavations was confirmed by 2011 work. It is apparent that the density of auriferous quartz veins is less in that direction, but prospecting along strike should be carried out by cleaning up of Kennecott's old trenches and channel sampling plus new excavations. The 2005 work indicated the likelihood of two ESE striking mineralized systems some 30m apart.

'Jf Zone': Gay Gulch Trench 06-06 {Utm 587400 E, 7084620 N}

The 2006 sampling of the last 20m of trench 06-06 was of very 'dirty' material since the excavation had not reached solid rock, but interesting assay values (up to 2.32 g/t) were obtained. The extension to that trench made in 2007 left a gap of several metres between the two. The last 20m of trench 06-06 and this 'gap' should be re-excavated and properly sampled. Attempts to cut a new trench in 2011 did not produce an adequate excavation. A new attempt should be made in 2012.

### **DEEP EXPLORATION**

No past drilling has penetrated the Lone Star ridge beneath about 160m. Since there was a considerable lag time between drilling and receipt of assays there were a few holes that were stopped and which later were seen to have significant grades near or at their bottom. One or two relatively deep (450m) diamond drill holes are warranted in order to investigate geology beneath the Lone Star thrust. An initial location should be at the top of the 7 Pup placer workings, angling the hole at 80° to the SW to cross the steep limb of the major F<sub>3</sub> fold and then to penetrate the thrust fault.

### **VALLEY EXPLORATION**

Little data is available from the lower parts of the Eldorado valley. Two mineralized quartz vein systems are known (100m NW of the Veronika system and opposite Gay Gulch) that have not been adequately sampled. It is recommended to carry out a close-

spaced pitting programme using a tractor-mounted excavator along the bank above the Eldorado road to prospect for outcropping vein systems and hence to use the road cut as a continuous 'trench'.

### **PERIPHERAL CLAIMS**

#### Little Blanche, Canyon Creek-Quartz Creek, Violet, "310 Zone" and French Gulch

A well defined soil gold anomaly has been delineated by the 2006-7 sampling at the right fork of Little Blanche Creek. This 1000 x 400m apparently NW trending anomaly is immediately above an outcropping breccia zone mapped during 2007 and is immediately above a placer mine access road. This anomaly coincides with the location predicted as a source for placer gold by Rob Chapman's work. Two possible methods are available to test this prospect: use of the Nodwell mounted auger capable of cutting up to 15m into the schist and obtain rock samples over a 1000 x 500 m grid with subsequent assay, or excavation of four NE oriented trenches across the anomalous zone.

On the ridge between Canyon Creek and Quartz Creek the 2007 mapping demonstrated that a N-S striking pyritic schist unit, approximately 70m thick contains anomalous gold and traces of copper at its upper and lower contacts. This outcropping mineralization is immediately above a region of anomalous gold in soil 1km (N-S) x 1.5km (E-W) that extends across Quartz Creek. It was obvious during soil sampling that the augered material obtained from the southern soil line was still in loess, which may be seen to be 2-3m deep in placer cuts in Quartz Creek. The southern line of this sampling should be re-sampled using longer augers to reach the C-horizon and the grid extended to the south.

At the head of Quartz Creek a further 500m scale gold-in-soil anomaly was noted from the 2007 work. This occurs upslope from Tim Cole's 2011 placer workings, which show outcrop of finely banded metavolcanics (? tuff). Further (syngenetic?) mineralization similar that of the lower part of the creek is probable. Pitting by backhoe and/or Nodwell based auger drilling into the schist to expose / sample outcrop is needed.

At the Violet mine the 2006 bulk sampling indicated a grade of 0.86 g/t for quartz from the northernmost shaft and 1.23g/t for surface material from a parallel vein system. The selvedges of the main vein were not sampled, so it is likely that significant grade



Figure. 29. Historical hand-sorted ore pile at the Violet mine.

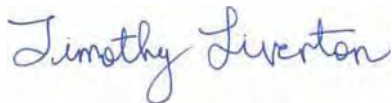
might occur there. Both this historical mine and the ‘310 Zone’ {Utm 582230 E, 7084730 N}, which yielded a bulk sample of 2.037g/t over a 75m length, are the two so far identified outcropping vein systems found on the SW side of Eldorado Creek, and it is likely that others will be located. These prospects are contained within the Sulphur Creek Orthogneiss unit rather than in Klondike Schist which may limit mineralization to vein systems rather than it being disseminated in schist, and specific sampling methods will need to be applied.

Later work at the Violet should consist of deepening of the Arbor Resources bulldozer trench to the immediate north of the mine by backhoe which will allow representative sampling. Rehabilitation of the shallow underground workings (not the main shaft) is feasible and would allow sampling of potentially high grade selvedges of the vein as exposed in the backs of the near-surface stope.

The whole of the ridge west of Eldorado Creek deserves systematic prospecting. Two methods are recommended: ridge-and-spur soil sampling using a hand-portable machine auger to obtain good C-horizon soil material, to be carried out from the Calder Summit saddle northward to French Creek and further backhoe excavation of trenches at right angles to the 310 trend, together with geological mapping and channel sampling of the historical opencut SE of the '310' trenches.

A fundamental aspect of future exploration is to utilize the specific exploration methods suitable for prospecting and mapping in areas largely covered by moss and vegetation, and where outcrop / subcrop is rare. These aggressive methods have proven highly effective and able to accurately and reliably identify structures, lithologies and trace contact across large areas of previously un/under-explored areas without the need to cut roads or trails.

A brief series of close spaced soil sampling using hand augers to C horizon that would cross the known mineralized structures, and analyzed for 44 element ICP is recommended in order to identify the characteristic signature(s) of the areas. It is hypothesized that there are variations in mineralization related to lithology, structure and possibly timing, which may be identifiable with geochemistry.

A handwritten signature in blue ink that reads "Timothy Liverton". The signature is written in a cursive, flowing style.

T. Liverton

28<sup>th</sup>. November 2011

T. Liverton, Ph.D., C.Geol., F.G.S.  
P.O. Box 393, Watson Lake, Yukon, Y0A 1C0

## **CONSENT OF QUALIFIED PERSON**

I, Timothy Liverton, consent to the public filing of the technical report titled “Geology and Summary Report of the Lone Star Claim Group (Klondike goldfield), Yukon Territory” and dated 15<sup>th</sup>. November 2011 (the “Technical report”) by Lonestar Gold Inc.

I also consent to any extracts from or a summary of the Technical Report to be used in any news release, prospectus or AIF issued by Lonestar Gold Inc.

Dated this 15<sup>th</sup>. November 2011

A handwritten signature in blue ink that reads "Timothy Liverton". The signature is written in a cursive style.

Timothy Liverton

## CERTIFICATE

I, Timothy Liverton, geologist of 102 Komish Court, Watson Lake, Yukon, state that:

With reference to the report: "Geology and Summary Report of the Lone Star Claim Group (Klondike goldfield), Yukon Territory" dated 15<sup>th</sup>. November 2011.

That I have the following qualifications: BSc in geology and geophysics from the University of Sydney 1965, BSc (honours) in economic geology from the University of Adelaide 1968 and PhD from Royal Holloway, University of London 1992. I have 45 years' experience in mineral exploration and mining of lode tin, skarn and porphyry tungsten, porphyry copper, VMS base metals, lode and skarn gold, industrial minerals and placer tin and gold. I am a member of the Geological Association of Canada, Geological Society of America, Society of Economic Geologists and the Geological Society of London. By virtue of my validation as a Chartered Geologist I am a qualified person under N.I. 43-101 rules.

I carried out fieldwork on the Lone Star property between 2004 and 2007 when the claims were operated by Klondike Gold Corp. and Klondike Star Mineral Corp. and then as a consultant to Lonestar Gold Corp. between August and October 2011.

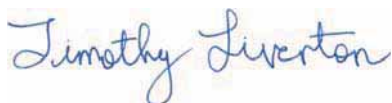
I am responsible for data presented from the work on these claims since 2004. Data from earlier work on the property has been derived from company reports as identified in the bibliography of this report.

I hold no shares or interest in Lonestar Gold Corp.

Prior involvement with this project consisted of geological consulting in 2004 and employment as Chief Geologist of Klondike Star Mineral Corp. from 2005-2007.

I have read this report and find its content to be correct.

It contains all data required to be disclosed and that data has not been presented in any form that may be misleading.



Timothy Liverton

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