



SILVER CREEK MAGNETOMETER SURVEY

by

G. C. LEE

June 6 to June 12, 1981

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This report has been examined by
the Geological Evaluation Unit
under Section 52 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 1,200.

Robinson

for Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

SILVER CREEK MAGNETOMETER SURVEY

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SILVER CREEK MAGNETOMETER SURVEY

INTRODUCTION

On June 6, 1981, I (Gary Lee, Box 5348, Whitehorse, Yukon) and Larry Lebedoff (Site 10, Component 8, RR #1, Whitehorse, Yukon) flew by helicopter to Silver Creek, located in the Yukon Territory (Map 115-A-3), for the specific purpose of conducting a magnetometer survey. Approximately one week later we walked out (12 miles) in order to ascertain the condition of the old tractor road which connects Silver Creek with Dalton Post.

Our aim was to test the feasibility of utilizing the magnetometer to accurately locate anomalies for which to recommend specific testing sites in the exploration for placer gold. It should be noted that gold was first discovered here in the 1930's.

CLAIMS - LOCATION

The magnetometer survey was conducted in two parts, or areas. (See Figures 1 and 2.) Area A is located on the northeast side of Silver Creek approximately two miles upstream from its confluence with the Tatshenshini River and is totally within the boundaries of placer claim "KLUANE 4", P-11586. Area B is located on the northeast side of Silver Creek near its mouth and consists of the adjoining group of placer claims - "KLUANE 5", P-11577, "KLUANE 2", P-11578 and "KLUANE 3", P-11585.

TOPOGRAPHY

Area A is contained in a relatively narrow, steep-walled valley. This area slopes gently up (with a few ridges) for a distance of approximately 80 metres from Silver Creek and then levels off into a bench for an additional distance of about 100 metres before encountering the steep upward slopes of the valley sides. It is for this reason that the mag. survey was restricted to within 180 metres of the creek.

Area B is almost all confined to the flat delta region near the mouth of Silver Creek; only the ends of a couple of lines are located on hill sides.

Both areas have a flood plain which is relatively bare of vegetation, bordered by heavy growths of buckbrush, poplar or spruce.

GRID LOCATION

The baseline in both areas was kept coincident with the claim line, with the zero station being Post #2, P-11586 in Area A and Post #2, P-11585 in Area B. The baselines were run in a roughly easterly direction through the remaining claim posts - with the exception of Post #1, P-11578, Area B, where the baseline occurs five metres to the south; the reason for this is that, if the location lines deteriorate with time, the grid can be re-established by simply locating the claim posts (base of trees). The station lines were thence run at right-angles to the baseline (see Figure 2). Where heavy buckbrush was encountered, as in Area A, a minimum of line-cutting was needed. In open bush, the lines were chained and flagged only.

GEOLOGY

As E. O. Kindle (GSC 1946-1950) shows on his geology map, the bedrock encompassing the Silver Creek valley is composed of the Mush Lake Group (andesite, basalt, rhyolite, etc.) and the Kaskawulsh Group (limestone, marble, slate, etc.) Overlying these are deep glacial deposits in which the present creek has cut down through. There are numerous slide areas from one to five miles upstream.

It is also important to note that there are numerous granitic type boulders up to three feet in diameter in the present creek bottom. Pans taken in or near the creek contained significant quantities of black sand (high in magnetite).

APPLICATION OF MAGNETIC THEORY

Applying magnetic theory to placer prospecting is twofold: the first (and the most obvious) reason is to try and locate ancient, buried stream channels by detecting the higher-than-background concentrations of black sands (magnetite) which could show up as anomalies in a magnetometer survey. Secondly, and not so obvious, is that, if the present stream channel contains large boulders such as granite, their magnetic susceptibilities should be measured; in this case, a washed granitic boulder (2 feet diameter) resulted in a 100 gamma high at a distance of three feet. This is significant since a relatively shallow, buried boulder field would be anomalous and thus could indicate the possible location of an ancient stream channel.

Of course, a survey of this type works best in valleys where the depths of overburden are estimated to be relatively shallow.

One of the most difficult tasks in the interpretation of a survey of this type is to eliminate anomalies which are caused by bedrock itself. In placer prospecting, only those anomalies which are suspect of being caused by material on top of bedrock should be investigated. It is important to keep accurate field notes on topography, vegetation (type of trees, etc.) and geology, such as noting mag. readings over known bedrock outcrops. A more detailed discussion is contained in the interpretation section.

METHOD OF SURVEY

A base station was established in each of Areas A and B. The diurnal was monitored and found to be quite stable in both areas. The normal procedure was to read the base station, then take readings up one line and down the next, at between 1 and 5 metre spacing, noting the time, where necessary, before checking back into the base station in order to close the loop. Corrections were made to the readings in order to correct for minor fluctuations in the diurnal. These corrected readings (included in Appendix) were then plotted as profiles.

INTERPRETATION AND CONCLUSIONS

Area A

The resulting profiles are plotted in Figures 3 and 4. On inspection of these profiles, one can see that some rather large anomalies were detected. At first glance, one might suspect that these rather high anomalies are caused by bedrock since the readings on or near the creek are quite low; however, on closer inspection, there are two localities on the survey which seem to contradict this. One is located in the centre of a level sub-bench on the bottom of an old, three metre deep, narrow cat cut (Figure 4, station 0+57.5N) and the other is located on bedrock (Figure 3, line 0+60E, station 0+52.5N). In both cases, the mag. readings were taken vertically closer or on bedrock. One would expect that, on the only two spots on the survey where one is dropping down vertically closer to bedrock within the overburden, if the anomaly was caused by bedrock it should be getting higher instead of lower. This is especially significant in Figure 4 where the bottom of the cat cut is surrounded by large anomalies.

This evidence indicates that these anomalies are caused by overburden and, indeed, on inspection of the relatively low readings on each side of the cat cut, it was probably the worst location to test. Hence, the obvious conclusion is that these rather large anomalies could be attributable to above-average concentrations of black sand, which may indicate the location of probably more than one ancient narrow channel.

Also of significance are the extreme changes of magnetism over short horizontal distances which indicates shallow depths to the anomaly source. Also, on line 0+80E between 0+05S and 0+10N, the order of magnitude and profile dimensions fit those of the magnetic susceptibility tests on boulders - which could indicate the presence of large buried boulders.

For each locality, testing should be done in the centre of the anomaly peak.

Area B

The profiles are plotted on Figures 5 to 8 inclusive. The anomaly on Figure 6, line 2+40E, station 1+00N is suspected of being a highly mineralized (barren iron sulphides) quartz vein which was noted outcropping approximately 100 metres away. Again, there are two localities (line 1+60E and 1+40E, station 0+10N) at which mag. readings were taken on or near bedrock. Here, as in Area A, the readings were lower, indicating the surrounding magnetism originates from the overburden. Since there are no significant fluctuations in magnetism detected in the delta pertaining to placer exploration, all readings are considered to be background.

RECOMMENDATIONS

Area A

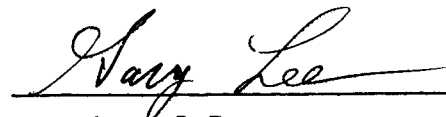
Testing (pits) be excavated on line 0+80E at station 0+80N, line 0+60E at station 1+02N, line 0+40E at station 0+42N and line 0+80E at station 0+05S.

If encouraging results are encountered, then further magnetometer work is recommended up and down the valley.

Area B

No testing is recommended.

Respectfully submitted:



Gary Lee, P.Eng.
November 1981

Association of Professional Engineers
of Yukon Territory

THIS IS TO CERTIFY THAT:

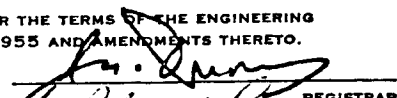
Gary C. Lee

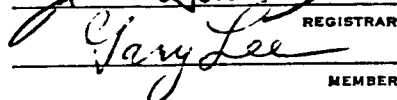
MR. _____

IS A

PROFESSIONAL ENGINEER

REGISTERED UNDER THE TERMS OF THE ENGINEERING
ORDINANCE OF 1955 AND AMENDMENTS THERETO.


REGISTRAR


MEMBER

YEAR 1981

AREA 'A'
PLACER CLAIM P11586
'KLUANE 4'

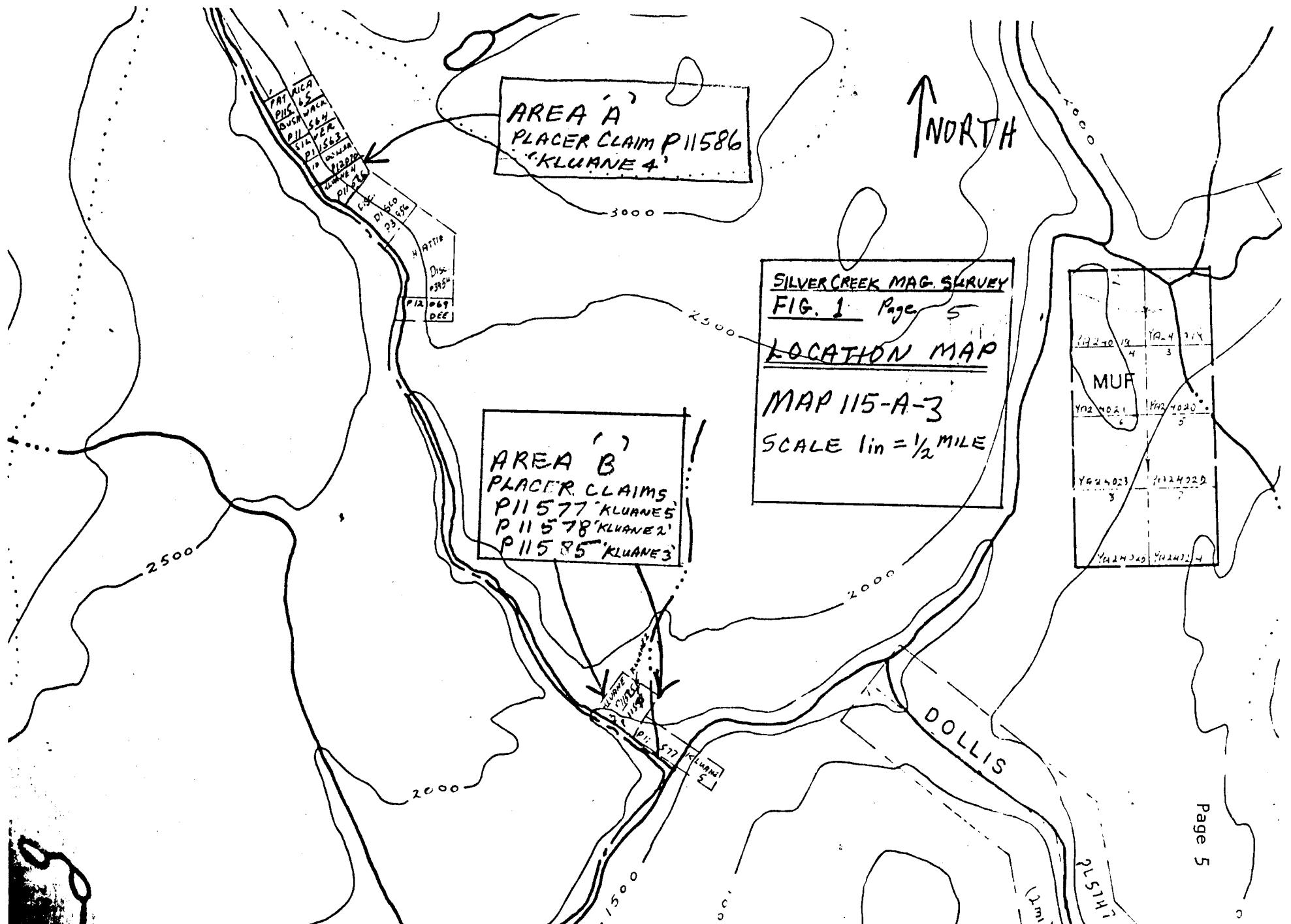
NORTH ↑

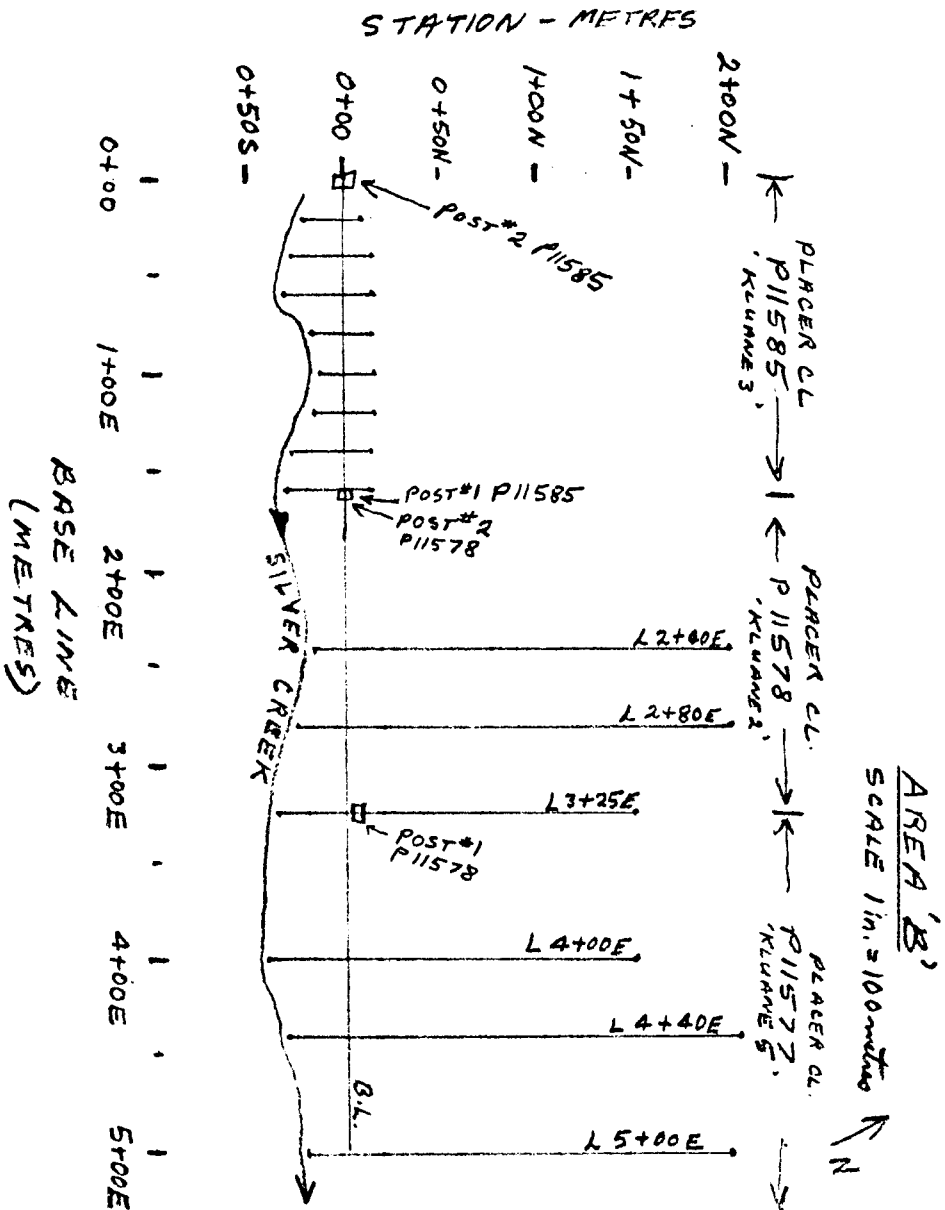
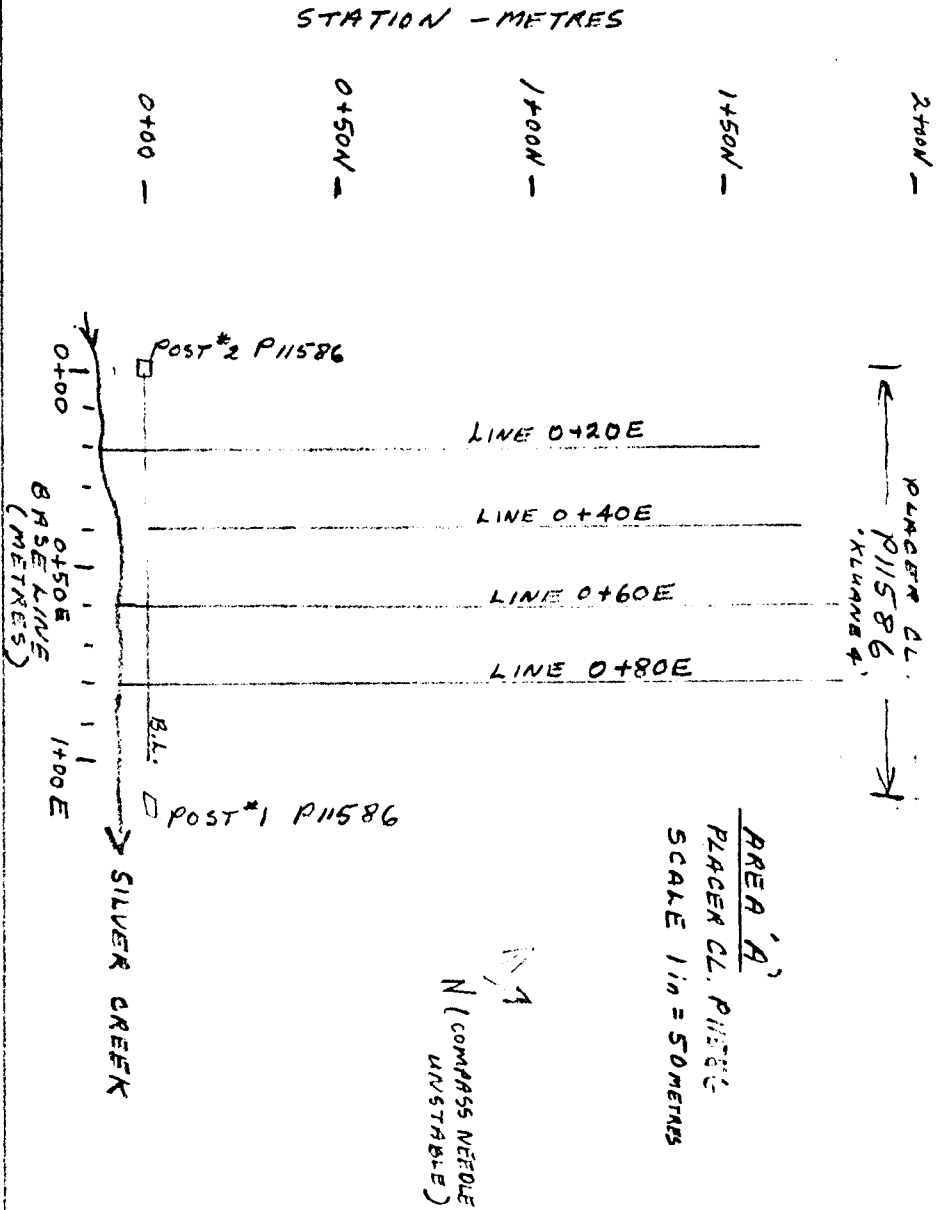
SILVER CREEK MAG. SURVEY
FIG. 1 Page 5
LOCATION MAP
MAP 115-A-3
SCALE 1 in = 1/2 MILE

AREA 'B'
PLACER CLAIMS
P11577 'KLUANE 5'
P11578 'KLUANE 2'
P11585 'KLUANE 3'

Y624019	Y624021	Y624023	Y624025
4	4	3	5
Y624027	Y624029	Y624031	Y624033
3	3	3	4

MUF





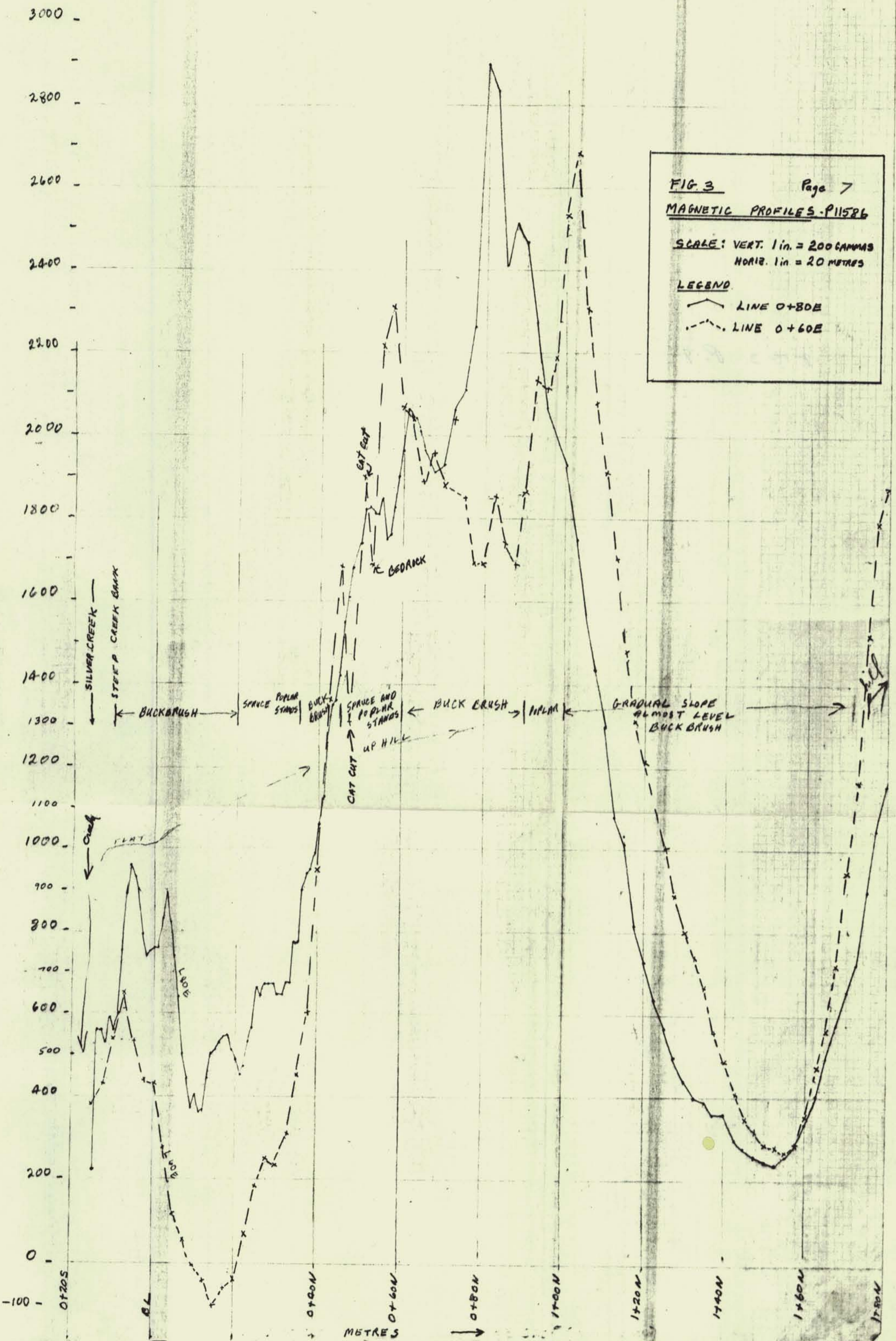
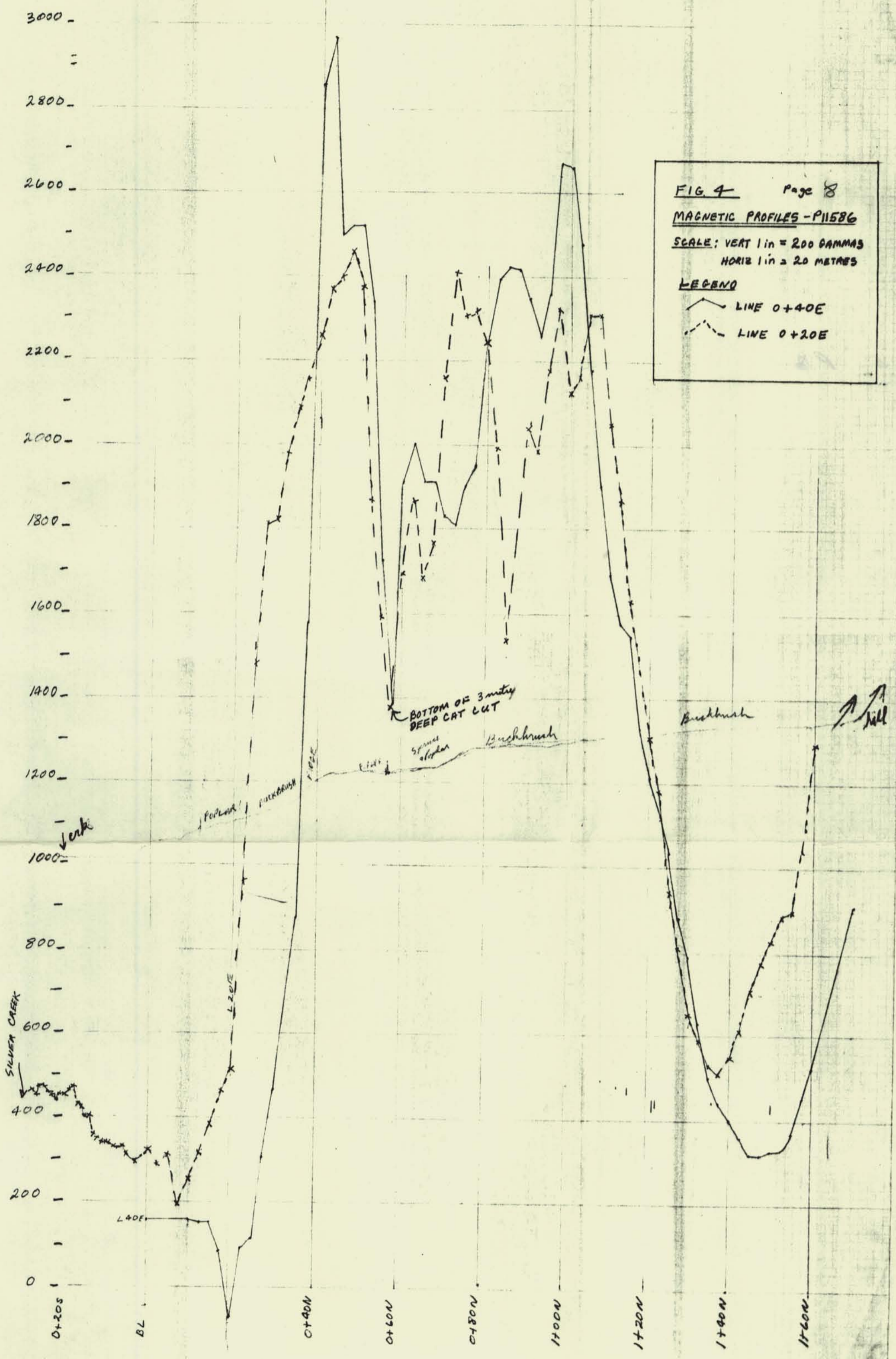


FIG 3 Page 7
MAGNETIC PROFILES - P11586
 SCALE: VERT. 1 in. = 200 METRES
 HORIZ. 1 in. = 20 METRES
LEGEND
 — LINE 0+80E
 - - - LINE 0+60E



MAP# 115A-3
 DOC # 120007
 (318)

MAG. READING - GAMMAS

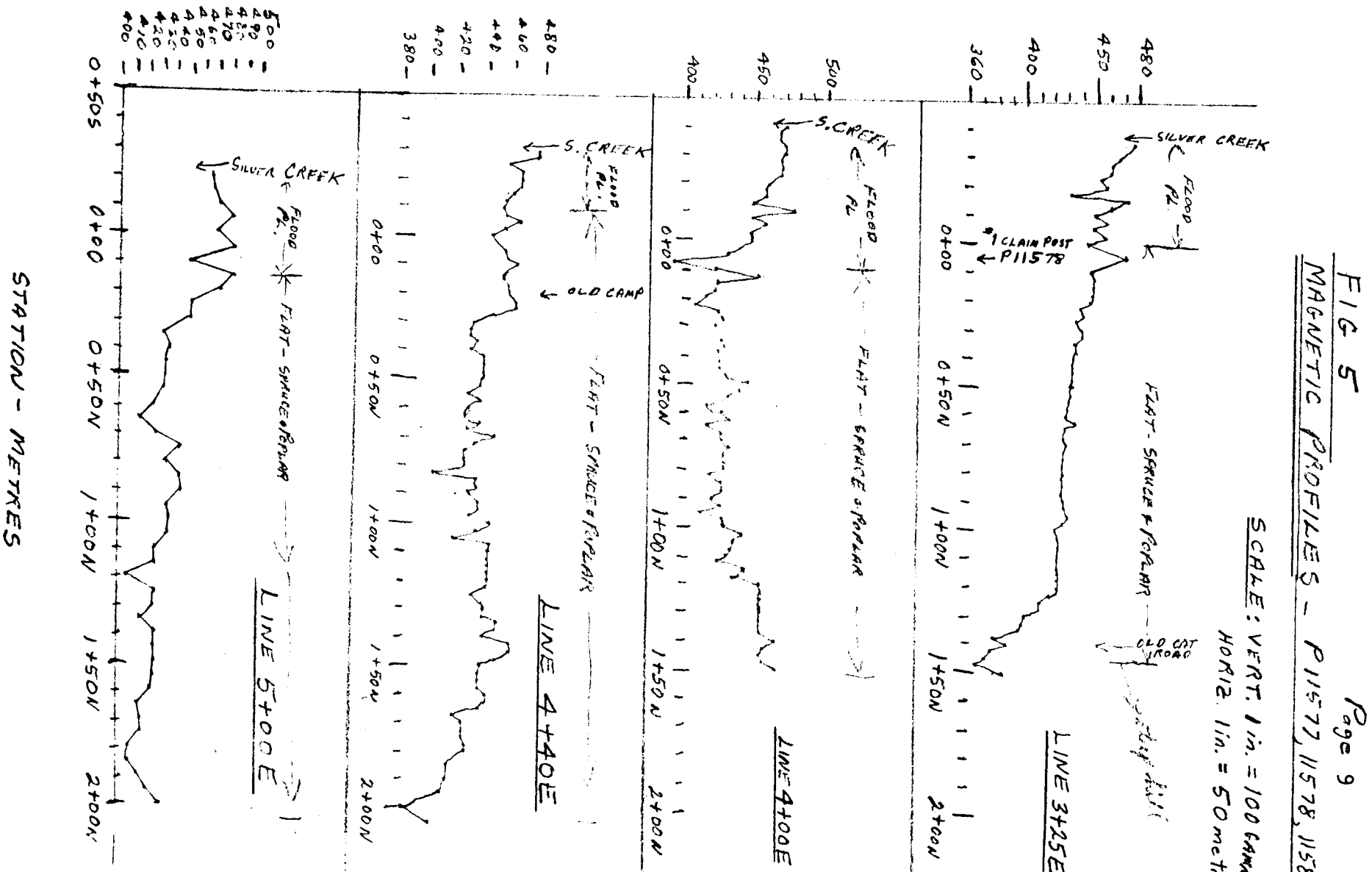
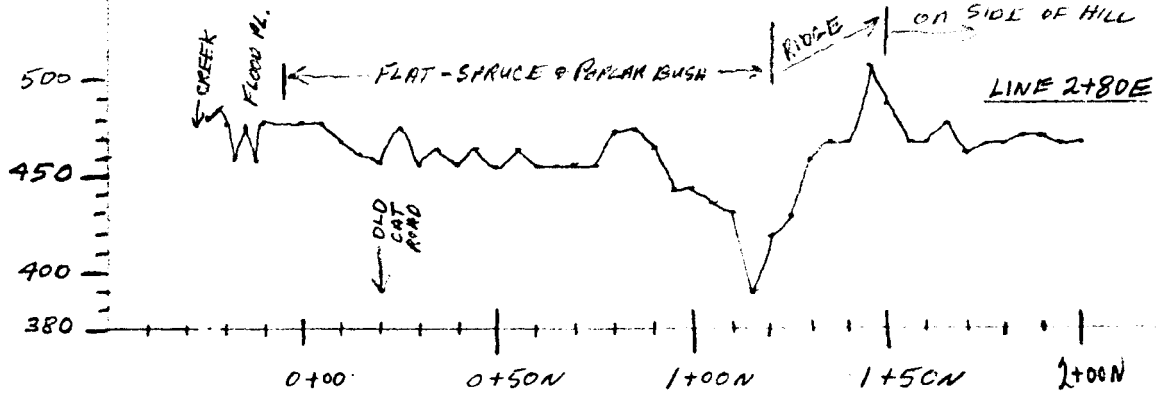
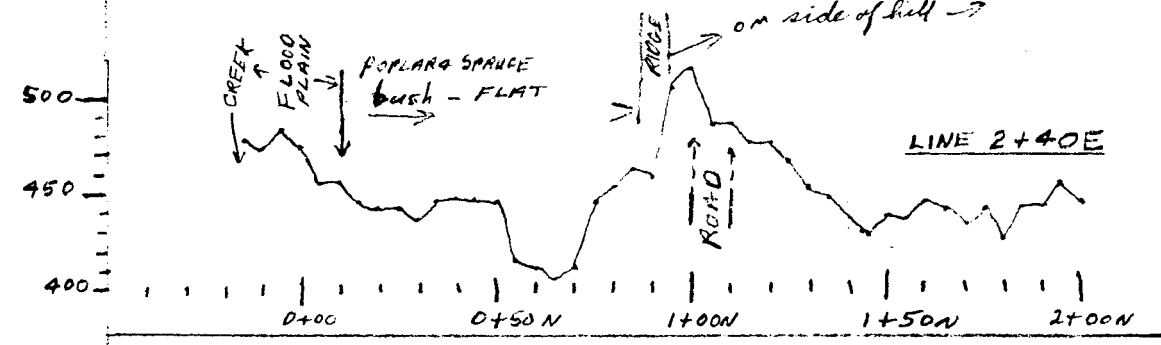
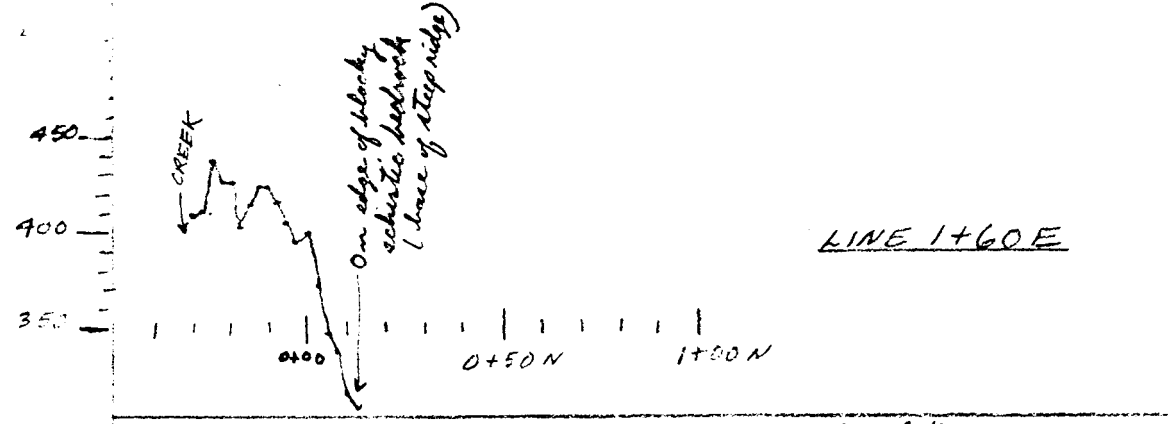
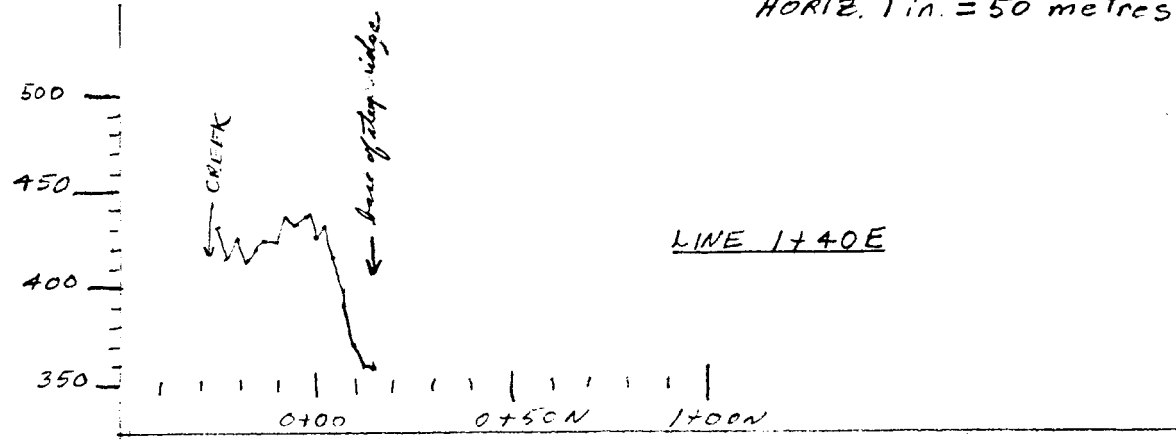


FIG. 6
MAGNETIC PROFILES - P11577, 11578, 11585

SCALE: VERT. 1 in. = 100 GAMMAS
HORIZ. 1 in. = 50 metres

MAG. READING - GAMMAS



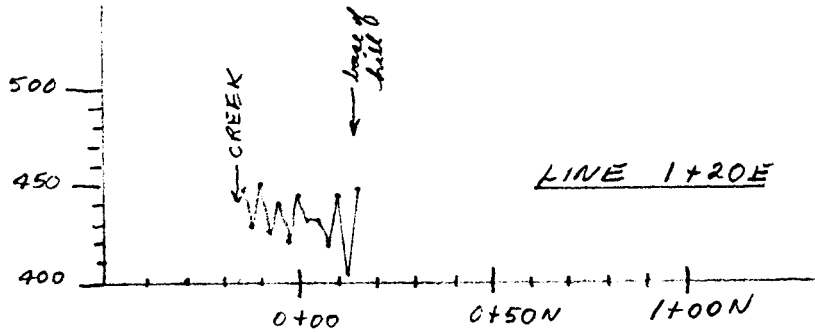
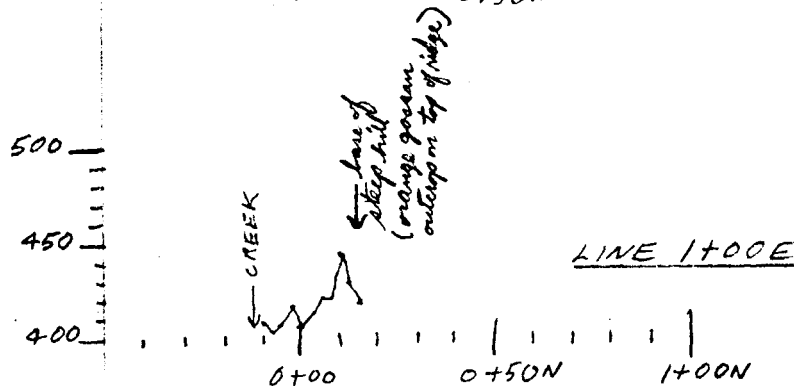
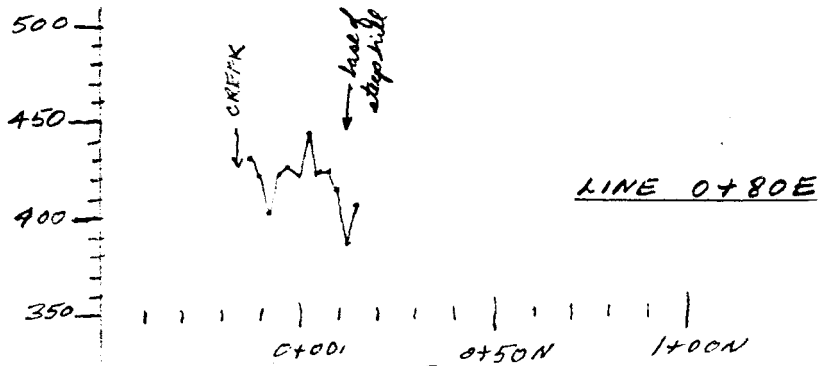
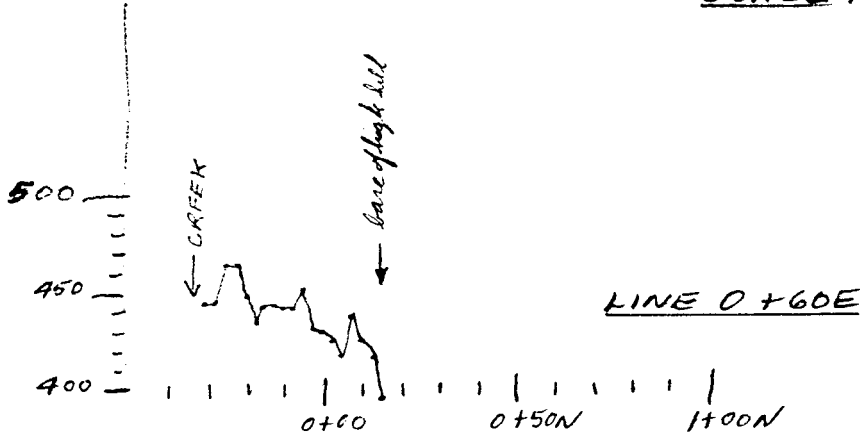
STATION - METRES

FIG 7

MAGNETIC PROFILES - P1157, 78, 85

SCALE: VERT. 1 in. = 100 GAMMAS
HORIZ. 1 in. = 50 metres

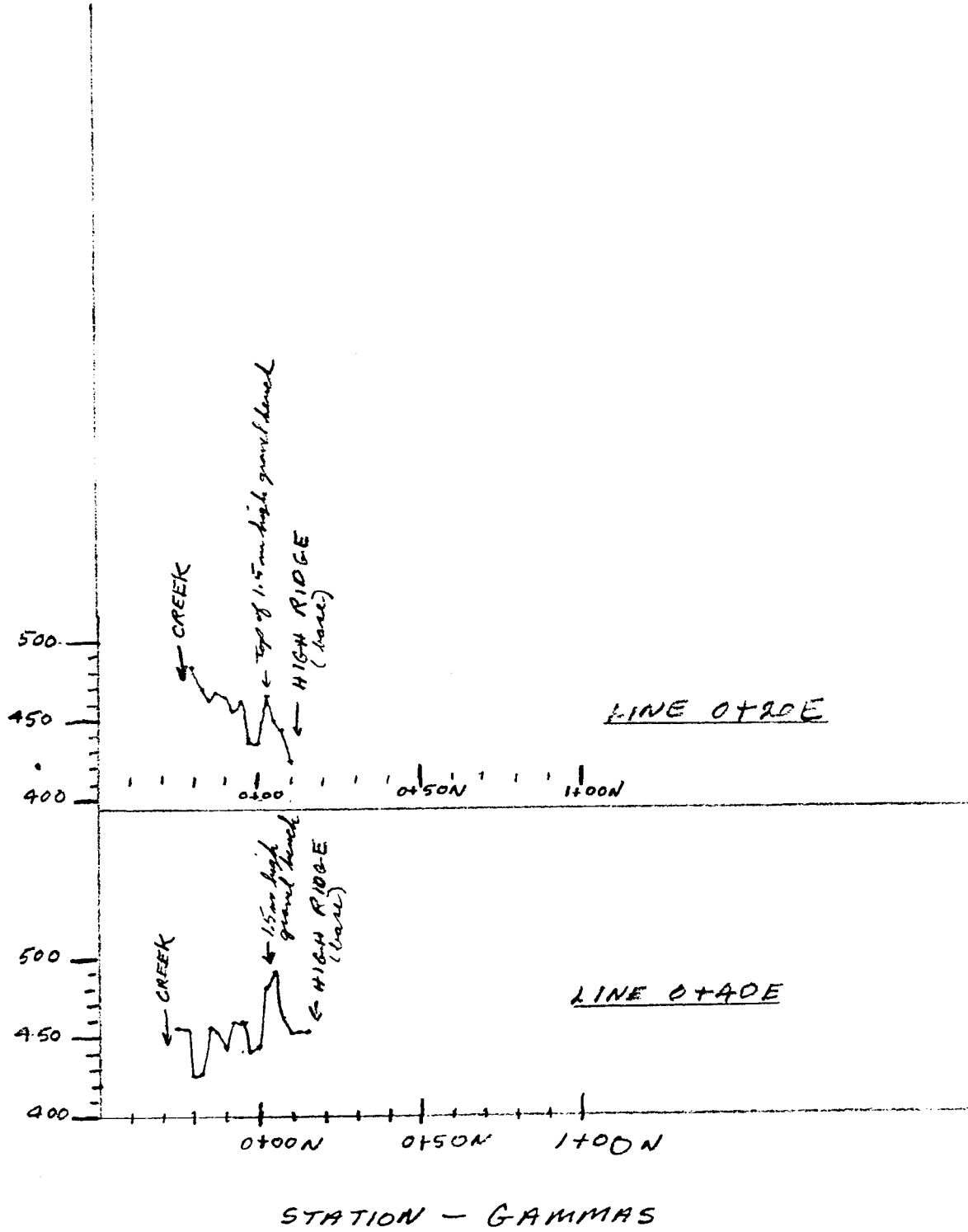
MAG. READING - GAMMAS



STATION - METRES

FIG. 8
MAGNETIC PROFILES P11577, 78, 85
SCALE: VERT 1 in = 100 GAMMAS
HORIZ 1 in = 50 meters.

MAG. READING - GAMMAS



APPENDIX

I

TABLE OF CORRECTED READINGS - PLASTER CLAIM P11586

(metres) LINE	(metres) STATION	COR. RDG. GAMMAS	LINE (metres)	STATION (metres)	COR. RDG. (GAMMAS)	LINE (metres)	STATION (metres)	COR. RDG. (GAMMAS)
80E	0+00S	760	80E	0+21N	485	80E	0+58N	1824
^	0+01S	750	^	0+22	475	^	0+59	1904
	0+02	740		0+23	535		0+60	1985
	0+03	790		0+24	566		0+61	2065
	0+04	900		0+25	666		0+62	2055
	0+05	930		0+26	646		0+63	2045
	0+06	960		0+27	676		0+64	2016
	0+07	890		0+28	677		0+65N	1966
	0+08	750		0+29	677		0+67.5	1916
	0+09	680		0+30	647		0+70	1936
	0+10	560		0+31	647		0+72.5	2067
	0+11	590		0+32	678		0+75	2117
	0+12	530		0+33	678		0+77.5	2267
	0+13	560		0+34	778		0+80	2897
	0+14.5	560		0+35	778		0+82.5	2377
↓	0+15S	220		0+36	899		0+85	2417
80E	0+00	760		0+37	939		0+87.5	2518
^	0+01N	760		0+38	979		0+90	2468
	0+02	830		0+39	989		0+92.5	2278
	0+03	890		0+40	1060		0+95	2068
	0+04	821		0+41	1130		0+97.5	—
	0+05	741		0+42	1260		1+00	1938
	0+06	641		0+43	1350		1+02.5	1748
	0+07	501		0+44	1361		1+05	1569
	0+08	442		0+45	1421		1+07.5	1439
	0+09	372		0+46	1451		1+10	1299
	0+10N	402		0+47	1511		1+12.5	1079
	0+11	362		0+48	1682		1+15	1014
	0+12	383		0+49	—		1+17.5	819
	0+13	443		0+50N	1742		1+20	730
	0+14	503		0+51	1822		1+22.5	640
	0+15	513		0+52	1833		1+25	570
	0+16	534		0+53	1813		1+27.5	500
	0+17	544		0+54	1813		1+30	440
	0+18	554		0+55N	1853		1+32.5	400
√	0+19	514	√	0+56	1754	√	1+35	391
80E	0+20N	485	80E	0+57	1764	80E	1+37.5N	361

TABLE OF CORRECTED MAG. READINGS - PLASTER CLAIM P11586

LINE (meters)	STATION (meters)	COR'D RDG (CENTIMETERS)	LINE (meters)	STATION (meters)	COR'D MAG RDG. (CENTIMETERS)	LINE (meters)	STATION (meters)	COR'D MAG (CENTIMETERS)
80E	1+40N	361	60E	1+38.5	762	60E	0+32.5N	1364
	1+42.5	301		1+35	502		0+40N	950
	1+45	252			393			604
	1+47.5	262		1+35N	1003		0+35	455
	1+50	250			—			315
	1+52.5	240		1+20	1213		0+30	235
	1+55	260			1222			212
	1+57.5	290		1+15	1432		0+25	186
	1+60.0	320			1704			71
	1+62.5	310		1+10	1915		0+20	-43
	1+65	500			2085			-63
	1+67.5	520		1+05	2305		0+15	-103
	1+70	620			2681			-42
	1+72.5	735		1+00	2536		0+10N	-2
	1+75	900			2186			58
✓	1+77.5	1050		0+95	2117		0+5N	119
80E	1+80N	1160			2137			279
60E	1+80N	1876		0+90	1867		0+00	431
		1796			1658		0+2.55	440
	1+75N	1526		0+85	1738		0+055	530
		1177			1252		0+0755	650
	1+70	947		0+80	1689		0+105	540
		727			1689	✓	0+12.55	430
	1+65	568		0+75	1849	60E	0+155	380
		478			2040	40E	1+00	162
	1+60	358		0+70	1880	✓	0+10N	162
		219			1960			150
	1+55	209		0+65	1891		0+15	145
		179			2041			85
	1+50	290		0+60	2071		0+20	-74
		320			2312			96
	1+45	350		0+55	2222		0+25	117
		411			1692			307
	1+40	491		0+50	1903		0+30	468
		561	✓		1313	✓		—
60E	1+35N	672	60E	0+45	1682	40E	0+25N	878

TABLE OF CORRECTED MAG. READINGS - PLACER CLAIM P11586

LINE	STATION	COR'D	LINE	STATION	COR'D	LINE	STATION	COR'D
(meters)	(meters)	(Gauss)	(meters)	(meters)	(Gauss)	(meters)	(meters)	(Gauss)
40E	0437.5N	1577	40E	1427.5N	878	20E	1425N	2318
	0440N	2559		1430	789			2117
		2470			630		1400	2129
	0445	2500		1435	500			2329
		2521			441		0495	2180
	0450	2521		1440	401			1919
		2342			362		0490	2041
	0455	1732		1445	370			-
		1393			372		0495	1541
	0460	1913		1450N	334			1992
		2004			334		0480	2542
	0465	1912		1455	375			2222
		1885			456		0475	2000
	0470	1835	✓	1460	526			2911
		1816	40E	1470N	957		0470	2114
	0475	1906	20E	1460	1294			1705
		1957	✓		1044		0465	1527
	0480	2247		1455	896			1500
		2398			886		0460	1500
	0485	2428		1450	827			1587
		2419			778		0455	1547
	0490N	2349		1445	708			1868
		2260			609		0450	2375
	0495	2360		1440	550			2459
		2671			510		0445	2399
	1400	2661		1435	531			2570
		2482			592		0440	2700
	1405	2122		1430	652			2161
		1903			803		0435	2091
	1410N	1693		1425	940			1982
		1584			1185		0430	1822
	1415	1455		1420	1305			1813
		1335		1415	1636		0425	1400
	1420	1216			1866			754
✓		1126	✓	1415	2057	✓	0420N	514
40E	1425	1037	20E	1407.5N	2317	20E	0417.5N	465

TABLE OF CORRECTED MMS READINGS - PLACER CLAIM 1910 88

LINE (meters)	STATION (meters)	DEPTH (meters)
20E	0415N	385
		376
	0416N	296
		107
	0417N	307
		288
	0400	328
		299
	0405S	309
	0406	329
	0407	325
	0408	320
	0409	311
	0410S	343
	0411	342
	0412	340
	0413	303
	0414	403
	0415S	404
	0416	424
	0417	435
	0418	475
	0419	466
	0420S	456
	0421	457
	0422	442
	0423	453
	0424	458
	0425	469
	0426	469
✓	0427	450
20E	0428S	460

TABLE OF CORRECTED READINGS - PLACER CLAIMS P11577, 78, 85

LINE NO.	STATION	COR. OF MAG.	LINE NO.	STATION	COR. OF MAG.
3425E	0455N	470	3425E	0497.5N	428
↗	0450	441	↗	1+00	422
	444			1+05	425
	0+15	428		1+10	424
	448			1+15	423
0+20	445			1+20	401
	439			1+25	400
0+25	441			1+30	397
	436			1+35	380
0+30	440			1+40	390
	440			1+45	374
0+35	434			1+50	368
	436			1+55	388
0+40	433		3+25E	1+60N	448
	433		↘	↘	467
0+45	432		↘	↘	457
	434		↘	↘	454
0+50	431		↘	↘	458
	431		↘	↘	466
0+55N	430		↘	↘	455
	430		↘	↘	455
0+60	429		↘	↘	455
	437		↘	↘	455
0+65	429		↘	↘	454
	428		↘	↘	454
0+70	430		↘	↘	454
	428		↘	↘	454
0+75	428		↘	↘	454
	427		↘	↘	454
0+80	427		↘	↘	454
	427		↘	↘	454
0+85	427		↘	↘	454
	426		↘	↘	454
0+90N	429		↘	↘	454
	429		↘	↘	454
3+25E	0+95	431	↘	↘	435
			↘	↘	435

TABLE OF CORRECTED READINGS - PLACER CLAIMS P 1157, 78, 85

LINE (metres)	STATION (metres)	COR'D RDG (GAMMAS)	LINE (metres)	STATION (metres)	COR'D RDG (GAMMAS)	LINE (metres)	STATION (metres)	COR'D RDG (GAMMAS)
4+00E	0+25N	423	4+00E	0+10S	478	4+00E	0+50	438
		408			477			437
	0+20N	413		0+05S	457		0+55N	427
		420			407			437
	0+15N	422	4+00E	0+00	446		0+60	427
		451	4+00E	0+30S	476			423
	0+10N	421			476		0+65	436
		391		0+25S	456			426
	0+05N	430			465		0+70	446
4+00E	0+00	446		0+20S	465			431
3+25E	0+00	444			460		0+75	425
		454		0+15S	459			425
	0+05S	409			454		0+80	475
		457		0+10S	451			467
	0+10S	408			453		0+85	437
		460		0+05S	463			437
	0+15S	471			453		0+90	429
		432	4+00E	0+00	473			430
	0+20S	458	4+00E	0+05N	452		0+95	423
		450			457			428
	0+25S	460		0+10	462		1+00	443
		461			451			432
	0+30S	467		0+15	451		1+05	417
3+25E	0+35S	478			456			422
4+00E	0+40S	470		0+20	451		1+10	472
		465			460			471
	0+35S	465		0+25	460		1+15	441
		470			445			441
	0+30S	470		0+30	436		1+20N	471
		469			429			490
	0+25S	469		0+35	429		1+25	430
		469			434		1+30	439
	0+20S	459		0+40	429			439
		458			438		1+35	449
	0+15S	458		0+45	438			448
4+00E		448	4+00E	0+47.5N	438	4+00E	1+40	438

LINE (metres)	STATION (metres)	COR'D RUB (GRAMMAS)	LINE (metres)	STATION (metres)	COR'D RUB (GRAMMAS)	LINE (metres)	STATION (metres)	COR'D RUB (GRAMMAS)
4+40E	1+02.5N	458	5+00E	1+25N	426	2+80E	0+12.5S	459
	1+45	458		1+20N	406		0+10S	479
		407			425		0+00	479
	1+50	437		1+10	425		0+05N	478
		436			435		0+10N	468
	1+55	436		1+00	435			462
		435			434		0+20N	457
	1+60	440		0+90	444			476
		440			444		0+30	456
	1+65	435		0+80	430			465
		417			443		0+40	455
	1+70	424		0+70	428			460
		424			413		0+50	453
	1+75	424		0+60	423			463
		428			432		0+60	453
	1+80	428		0+50	432			453
	1+85	413			432		0+70	453
	1+90	412		0+40	431			452
	1+95	410			431		0+80N	472
	2+00N	381		0+30	451			472
4+40E	2+10N	401			451		0+90	462
5+00E	2+00N	430		0+20N	471			441
	1+95	420			480		1+00	441
	1+90N	415		0+10N	450			435
		409			480		1+10	430
	1+80	409		0+00	470			399
		418			480		1+20	419
	1+70	418		0+10S	470			429
		413			465		1+30	459
	1+60	423		0+20S	465			468
		427	5+00E	0+30S	460		1+40	468
	1+50	427	2+80E	0+25S	480			508
		427			485		1+50	488
	1+40	427		0+20	478			467
		416			459		1+60	467
5+00E	1+30N	426	2+80E	0+15S	478	2+80E	1+65N	476

2+80E 1+70N 461
 266
 1+80N 436
 470
 1+90N 470
 465
 2+80E 2+00N 465
 2+40E 2+00N 440
 453
 1+90N 443
 442
 1+80 427
 441
 1+70 431
 440
 1+60 445
 439
 1+50 439
 428
 1+40 438
 447
 1+30 452
 466
 1+20 476
 475
 1+10 486
 434
 1+00N 514
 503
 0+90 458
 462
 0+80 452
 446
 0+70 411
 405
 2+00E 0+60N 410

2+40E 0+55 N 414
 0+50 424
 428
 0+40 448
 447
 0+30 437
 441
 0+20 441
 405
 0+10 N 455
 450
 0+00 474
 483
 0+10S 472
 2+40E 0+15S 478
 1+60E 0+30S 410
 411
 0+25 437
 427
 0+20S 437
 403
 0+15 413
 420
 0+10 424
 415
 0+05 405
 396
 0+00 401
 372
 0+05N 377
 338
 0+10N 318
 1+60E 0+125N 309
 1+40E 0+15N 357
 360
 1+40E 0+10N 370

1+40E 0+75N 391
 0+05N 416
 432
 0+00 427
 438
 0+05S 433
 439
 0+10S 424
 425
 0+15S 420
 416
 0+20S 426
 417
 1+40E 0+25S 432
 1+20E 0+15S 448
 429
 0+10S 449
 425
 0+05S 440
 421
 0+00 446
 432
 0+05N 432
 419
 0+10N 443
 404
 1+20E 0+15N 484
 1+00E 0+15N 420
 431
 0+10N 446
 422
 0+05N 422
 413
 0+00 408
 419
 1+00E 0+05S 409

TABLE OF CORRECTED AND RECALCULATED PLACER CLAIMS P11571, 11572, 11585

LINE (inches)	SECTION (inches)	CORRECTED WEIGHT (GRAMS)	LINE (inches)	SECTION (inches)	RECALCULATED WEIGHT (GRAMS)
1400E	0+07.5S	405	0+40E	0+17.5S	428
1400F	0+10S	410		0+15S	458
0+80E	0+12.5S	431			444
	0+10S	421		0+10S	434
		402			450
	0+05S	422		0+05S	460
		433			441
	0+00	422		0+00	446
		444			480
	0+05N	424		0+05N	492
		425			462
	0+10N	415		0+10N	452
		406			453
0+80E	0+15N	410	0+40E	0+15N	453
0+60E	0+15N	417	0+40E	0+20N	433
		418	0+40E	0+10N	422
	0+10N	415			445
		439		0+05N	450
	0+05N	419			466
		425		0+00	436
	0+00	430			437
		431		0+05S	462
	0+05S	451			458
		442		0+10S	463
	0+10S	442			464
		443		0+15S	464
	0+15S	443			470
		434		0+20S	485
	0+20S	449			
		465	0+20E	0+25S	490
	0+25S	465			
		446			
0+60E	0+30S	446			
0+40E	0+25S	457			
		457			
0+40E	0+20S	477			