COMINEX

H.D.Nolan
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EL61/94 ARTHUR RIVER.
INTERIM REPORT TO 31st MAY 2000

Blackwater } EL35/03 Stephens Rivulet/
Hawkes Ck } Hawkes Creek

Volume 1 of 1

Prepared by N. J. Turner Geological Services Pty Ltd
65 Lochner St, West Hobart, Tasmania 7000

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1.0 Summary

- EL61/94 Arthur River is due for 50% reduction at 9.6.2000. This reduction will allow retention of all the known occurrences of silica flour in the licence.
- At the current stage of exploration of the licence, one potentially commercial deposit of silica flour has been recognised and has been named the Blackwater No.1 East Deposit. The minimum area required for the retention of this deposit is 1 skm.
- Exploration in areas held by Pacific-Nevada Mining Pty Ltd adjacent to EL61/94 has led to the identification of two other potentially commercial silica flour deposits called the Blackwater No.1 West Deposit and the Hawkes Creek Deposit. In each case, the minimum area required for the acquisition of these deposits is 1.5 skm.
- Further assessment of the three potentially commercial deposits of silica flour is recommended. Also, further assessment of several areas of possible silica flour is recommended.

2.0 Introduction

H.D.Nolan, operating under the name Cominex, produces high purity silica flour from a mining operation at Corinna, near the lower Pieman River in western Tasmania. The raw silica flour is refined at Index Mineral Processors' plant at Heybridge, in north western Tasmania, and is sold as a cleaned, sized product to overseas manufacturers of electronic components, optical systems and lead crystal.

After a serious downturn in demand during the period 1994 -1997, which was largely related to aspects of the Japanese economy, interest in the high purity silica flour has increased. Demand by Japanese users is up, and it is likely that significant tonnages will be required by North American, Korean and French manufacturers. Forward projections by the users suggest that increased levels of demand are likely to persist for some time.

EL61/94 and adjacent areas contain silica flour deposits that appear to be of comparable quality to the Corinna deposits. Thus, they are of considerable interest as possible additional reserves for the existing mining and refining operations.

Cominex has previously carried out preliminary reconnaissance work on silica flour within EL61/94 (Turner, 1997). However, since July 1998 work in the tenement has been carried out by Pacific-Nevada Mining Pty Ltd under a joint venture agreement that is still current. Silica flour is excluded from the joint venture agreement, with Pacific-Nevada's interest being in gold and associated base metals.

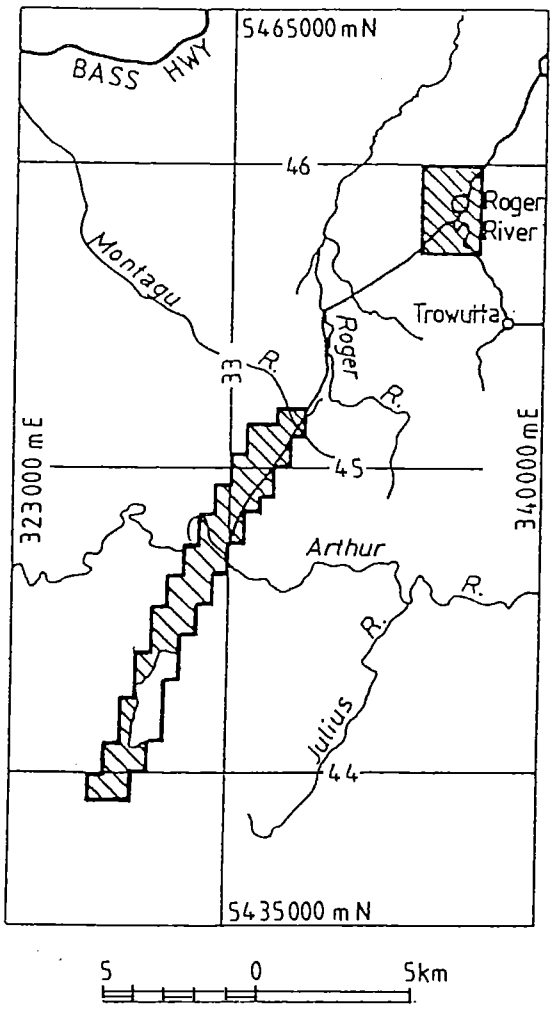

Figure 1. Locality map showing the two parts of EL61/94 Arthur River.

This report describes the distribution of silica flour within EL61/94 and in some adjacent areas to the west that are held by Pacific-Nevada Mining Pty Ltd. The work in Pacific-Nevada's ground has been made possible through an informal agreement between Cominex and Pacific-Nevada.

2.0 Tenement information

EL61/94 is located near the Arthur River (Figure 1) in north western Tasmania, some 30 km SSW of the town of Smithton. The exploration licence was granted for ten years from 9.6.1995, and will be subject to a 50% reduction in size at 9.6.2000. It is likely that reduction will be required irrespective of the joint venture arrangement with Pacific-Nevada Mining Pty Ltd.

The tenement currently comprises 23 skm and consists of two separate parts. There is a rectangular area of 6 skm at Roger River, and an elongate area of 17 skm that extends SSW from where the Roger River Road crosses the Montagu River to where the Blackwater Road crosses the Blackwater Rivulet.

The part of EL61/94 that is at Roger River is mostly in farmland. The other part of the licence is mostly in State Forest.

3.0 Geology and exploration targets

In the Corinna district the silica flour is a residual material developed on Late Proterozoic dolomite, and is capped by Tertiary gravel. There are two Late Proterozoic dolomite formations at Corinna namely, the Savage Dolomite (lower) and the Corinna Dolomite (upper), which are separated by basaltic volcanics and sedimentary rocks of the Bernafai Volcanics (Turner, 1992). Silica flour is developed on both dolomite formations though the high purity, commercial deposits that have been identified and partly mined by Cominex are on the Corinna Dolomite.

The silica flour consists of very angular, quartz silt and fine grained quartz sand. It apparently formed by the disaggregation of fine grained, silicified dolomite (Nolan, 1999). This disaggregation process may have been aided by leaching of the silicified dolomite by ground water rich in humic acids. The permiable Tertiary gravel probably provided a reservoir of such reactive fluid. The gravels also acted as a protective capping for the very soft, disaggregated residue of silica flour.

From the previous reconnaissance work Cominex was aware that the association of Late Proterozoic dolomite and silica flour that is evident at Corinna is also evident in the Arthur River area. There are two Late Proterozoic dolomite formations at the Arthur River that are probable correlates of the two dolomite formations at Corinna (Seymour and Calver,1995). They are the Black River Dolomite (lower) and the Smithton Dolomite (upper). These dolomite formations

are again separated by basaltic volcanics and sedimentary rocks, which in the Arthur River area are called the Kanunnah Subgroup.

Mineral Resources Tasmania has recently published new 1:25 000 geological maps that cover EL61/94 and adjacent areas. These maps include Roger (McClenaghan et al, 1999), Sumac (Everard, Seymour et al, 1999) and Dempster (Everard, Reed et al,1999). The maps show the distributions of the Late Proterozoic dolomites and of the Tertiary gravel and were used as the geological control for the round of exploration work that is reported here.

The work reported here targetted dissected areas in which dolomite, particularly the Smithton Dolomite, is overlain by Tertiary gravel. Silica flour usually finds little surface expression in vegetated areas and artificial excavations are commonly necessary in order to identify its presence. Therefore, only road sections, tracks and quarries in the targetted areas were examined.

5.0 Results of exploration

5.1 AREAS INVESTIGATED

The belt of country that was investigated is near the southern closure of the Smithton synclinorium (Seymour and Calver, 1995) and lies to the west of the Roger River Fault. The belt can be conveniently divided into three, contiguous areas of interest (see inset Figure 2-1). The upper Salmon River area (Figure 2-1) and the Hawkes Creek area (Figure 2-2) are north of the Arthur River and can be accessed from Smithton via the Marrawah Road and the Salmon River Road. The Blackwater Road area (Figure 2-3) is south of the Arthur River and can be accessed from Smithton via the Roger River Road and the Sumac Road. EL61/94 (Figure 1) covers part of the Blackwater Road area, but does not include any parts of the other areas.

5.2 UPPER SALMON RIVER AREA

Tertiary gravel and sand extensively overly Smithton Dolomite in the valley of the upper Salmon River, and include chromite bearing sand on Chromite Road. The Tertiary cover is thin and patchy along the Salmon River road where there are also shallow cuttings in iron-stained clay (?after Smithton Dolomite) and grey slate.

Residual deposits of angular, fine grained silica rocks in a matrix of impure silica flour are present on Salmon Road at 320450mE 5453750mN. These deposits appear to be positioned just below the base of the Tertiary gravel and sand. More substantial developments of silica flour may be present beneath the Tertiary materials elsewhere in the valley of the upper Salmon River, though no exposures were found on either Black Jay Road or Bark Hut Road. Inspection of

Bark Hut Road was restricted to the first 0.3 km, after which the road is too thickly overgrown to allow vehicular access.

Forming the south western margin of the valley of the upper Salmon River is a linear ridge that is underlain by partly silicified, flaggy, quartz siltstone and minor shale belonging to the Salmon River Siltstone. Chatlee Road runs along the crest of the ridge. Lag and shallow deposits of Tertiary gravel and sand are scattered along the ridge. Chromite is present in the Tertiary sand.

The Salmon River Siltstone is well exposed in the Salmon River Quarry (Figure 2-1) and in another quarry to the south east (Figure 2-2). In each quarry there are shallow, surface pockets of a few metres thickness in which the normally grey, siltstone has been leached white and partially disaggregated to silica flour. Similar material occurs along Chatlee Road. A sample of the silica flour from 321175mE 5451050mN on Chatlee Road proved to be relatively impure, containing 65 ppm Fe_2O_3 (AR015, Appendix 1). No evidence was found of thick developments of silica flour on the Salmon River Siltstone.

Tertiary gravel and sand are fairly extensive across the valley of Lovells Creek, which lies south west of the ridge of Salmon River Siltstone. Along the Salmon River Road there are also a few exposures of deeply weathered, clayey materials (?after Smithton Dolomite). Near the south western side of the valley, on Lovells Creek Road, there is an area of possible silica flour that was not inspected in the field. The area is along strike from the Hawkes Creek silica flour deposit.

5.3 HAWKES CREEK AREA

The Smithton Dolomite in the valley of the upper Salmon River extends south east into the Hawkes Creek area (Figure 2-2), as does the Salmon River Siltstone. Of these extensions, only the section of Salmon River Siltstone around the quarry on Chatlee Road was inspected in the field. It is described above.

South of the quarry, Chatlee Road passes down to Hawkes Creek through talus of flaggy siltstone and Tertiary gravel. Just east of Hawkes Creek there is minor exposure of silica flour with associated fine grained, silica rocks that display honeycombe texture. A sample of the silica flour returned +65 ppm Fe_2O_3 (AR016, Appendix 1). More extensive silica flour may be present elsewhere on the eastern side of Hawkes Creek, beneath the mantle of talus and Tertiary gravel.

Unaltered Smithton Dolomite crops out in Hawkes Creek at the Chatlee Road crossing. It is a very fine grained, pale buff dolomite containing abundant irregular fractures. Neither bedding surfaces nor stromatolites were identified.

On the ridge just south west of Hawkes Creek there is a fairly substantial deposit of silica flour, called the Hawkes Creek Deposit, with approximate dimensions of

550 m length, 125 m width and 10 - 20 m maximum thickness. The deposit appears to rest on deeply weathered, clay-rich materials (?after Smithton Dolomite). Large indurated blocks of fine grained silica are present in the section of the Hawkes Creek Deposit that is north west of Chatlee Road, but sections of the deposit on Chatlee Road and along a track to the south east appear to be predominantly flour. Ten silica flour samples from the Hawkes Creek Deposit ranged 6.1 - 50.6 ppm Fe_2O_3 (AR017-26, Appendix 1) with five samples below 11 ppm Fe_2O_3. However, these five samples are mostly greater than the 20/250 specified maximum for TiO_2, Al_2O_3, CaO, Na_2O and Cr, though the margins are not large. Other areas of possible silica flour occur along strike to the north west and south east of the Hawkes Creek Deposit (Figures 2-1,2-2).

5.4 BLACKWATER ROAD AREA

5.4.1 Blackwater No.1 Spur Road

Two deposits of silica flour are present on the Blackwater No. 1 Spur Road (Figure 2-3). They are the Blackwater No.1 East Deposit and the Blackwater No.1 West Deposit. The Blackwater No.1 East Deposit is exposed in cuttings along about 500m of the spur road, and in cuttings along about 50m of a track which trends north east from the spur road. A sample from the track contained 39.8 ppm Fe_2O_3 (AR032, Appendix 1).

There is a substantial proportion of indurated blocks of fine grained silica in the Blackwater No.1 East Deposit, which appears to rest on deeply weathered, clay-rich materials (?after Smithton Dolomite). Barometer measurements suggest a thickness of about 16m between the apparent base of the deposit on the track and its highest point on the spur road. It is likely that the deposit extends for some distance (?500m) to the south of the spur road.

Extending SSW from the Blackwater No.1 East Deposit to the Blackwater Road near Stephens Rivulet are several occurrences of silica flour. These occurrences include low ridges between Stephens Rivulet and the Blackwater Road where there is poor exposure of angular silica rock fragments in a matrix of silica flour. On Blackwater Road there are silica flour occurrences east and west of Stephens Rivulet. Three samples from these Blackwater Road occurrences ranged 19.4 - 100.6 ppm Fe_2O_3 (AR036-38, Appendix 1). Sample AR037 returned 19.4 ppm Fe_2O_3, but gave values greater than the 20/250 specified maximum for TiO_2, Al_2O_3, Na_2O, Cr and Ni. Major element analyses by Mineral Resources Tasmania for a sample (961105) from the occurrence west of Stephens Rivulet are given in Appendix 2.

The eastern part of the Blackwater No.1 West Deposit is exposed in substantial cuttings along about 100m of the Blackwater No.1 Spur Road, through an elevation change of about 27m as indicated by barometer measurements. Although there is substantial blocky material at the low point of the section, the

cuttings are predominantly flour. Three samples from the section ranged 22.4 - 43.2 ppm Fe_2O_3 (AR027-29, Appendix 1). Sample AR028 returned 22.4 ppm Fe_2O_3, but gave values greater than the 20/250 specified maximum for TiO_2, Al_2O_3, CaO, Na_2O, Cr and Ni. Poor exposure of silica flour with intermixed blocky silica material extends for another 450m further west along the spur road. Possibly, the silica flour also extends some 700m south of the spur road.

West and south of the observed and possible silica flour in the Blackwater No.1 West Deposit there is a substantial area of angular silica rock fragments with silica flour matrix and scattered lag of Tertiary gravel. Further investigation of this area may reveal potentially commercial patches of silica flour. Two silica flour samples from near the western edge of the area returned analyses of 25.6 and 32.5 ppm Fe_2O_3 (AR030 & 31, Appendix 1). Of these samples, AR031 returned 25.6 Fe_2O_3 and values greater than the 20/250 specified maximum for TiO_2, Al_2O_3, CaO, MgO, Na_2O, Mn and Ni.

The silica flour in the Blackwater No.1 West Deposit is apparently derived from the Black River Dolomite (Everard, Seymour et al, 1999), which is the lower dolomite formation in the Arthur River area.

5.4.2 Blackwater No.5 Spur Road

The Blackwater No.5 Spur Road gives access to part of a belt of Smithton Dolomite that is largely covered by Tertiary gravel and other superficial deposits. The belt extends SSE to the Blackwater Road and NNW to the Hawkes Creek area.

A small deposit of relatively coarse grained silica flour of potentially commercial quality occurs around 326100mE 5443400mN on Blackwater No.5 Spur Road (Figure 2-3). Two samples from the deposit returned 16.6 & 17.6 ppm Fe_2O_3 (AR033 & 34, Appendix 1). However, the samples returned values greater than the 20/250 specified maximum for TiO_2, Al_2O_3 (AR033), CaO, MgO (AR033), Na_2O (AR033), Cr and Ni (AR033). Another small deposit of relatively coarse grained silica flour is present on Blackwater Road at 326750mE 5440550mN. A sample from this deposit returned 11.7 ppm Fe_2O_3 (AR035, Appendix 1) and values greater than the 20/250 specified maximum for TiO_2, CaO and Ni. Silica sand on Blackwater Road at 326420mE 5440160mN, which is within EL61/94 and just south of the area covered by Figure 2-3, is probably a Tertiary deposit. Major element chemistry for a sample (961104) from the site is given in Appendix 2.

Though the known occurrences of silica flour in the belt of Smithton Dolomite on Blackwater No.5 Spur Road and Blackwater Road are small, they are widespread. Occurrences of angular, fine grained, silica rock fragments with silica flour matrix are also widespread (Figure 2-3). This widespread occurrence

of flour and flour-related materials indicates a potential for buried deposits beneath the extensive cover of Tertiary gravel and other superficial deposits.

5.5 NORTHERN PARTS OF EL61/94

In the part of EL61/94 that is at Roger River there are hard, brecciated, siliceous rocks that are well exposed in road metal quarries on the eastern side of the Roger River Road. These rocks probably represent completely silicified dolomite though diagnostic primary textures are difficult to confidently identify. No silica flour has been identified at Roger River.

Little work has been done in the part of EL61/94 that lies between the Arthur River and the Montagu River (Figure 1). No silica flour or related deposits were recognised on Leensons Road or on a track that trends north west from the Sumac Road at 330350mE 5448550mN.

6.0 Conclusions and recommendations

Three silica flour deposits of potential commercial interest have been identified in the Arthur River area. These are the Hawkes Creek Deposit, the Blackwater No.1 East Deposit and the Blackwater No.1 West Deposit. Of these, only the Blackwater No.1 East Deposit falls within EL61/94. The other two deposits are within ground held by Pacific-Nevada Mining Pty Ltd.

With the required 50% reduction of the current 23 skm extent of EL61/94 to 11.5 skm extent, it would be possible to retain all the known silica flour occurences in the licence. This would involve relinquishing the parts of the licence north of the 5447500mN, and trimming off 0.75 skm of unprospective ground from the12.25 skm area that lies south of 5447500mN. Retention of the resulting 11.5 skm area would allow further exploration and assessment of the known occurrences, particularly between Keppell Creek and Blackwater Road, and to the south around 326500mE 5440500mN. The minimum area necessary for the retention of the Blackwater No.1 East Deposit alone is 1 skm (Figure 2-3).

Further assessment of the Blackwater No.1 West Deposit and of the Hawkes Creek Deposit is desirable. Perhaps this might be done through a joint venture arrangement with Pacific-Nevada Mining Pty Ltd, with a view to enhancing Cominex's chances of acquiring these deposits when the ground is relinquished by Pacific-Nevada. The minimum area for acquisition is 1.5 skm in the case of each deposit (Figures 2-2,2-3). Prior to finalising the areas for acquisition, it is desirable that some further assessment be made of the ground west and south of the Blackwater No.1 West Deposit. Also, assessment should be made of the areas of possible silica flour that are along strike to the north west of the Hawkes Creek Deposit, around 321300mE 5429250mN (Figure 2-2) and 319400mE 5450800mN (Figure 2-1).

The known occurrences of silica flour in the belt of Smithton Dolomite that extends along Blackwater No.5 Spur Road and through to Blackwater Road are small and relatively coarse grained, but seem to have good iron chemistry. There appears to be potential for unexposed silica flour beneath the extensive superficial deposits in this belt, particularly south from 5443000mN to the Blackwater Road. A series of auger holes along Blackwater No.5 Spur Road from 326750mE 5441900mN to 326275mE 5442850mN would partly assess this potential. Favourable results would encourage further acquisition of ground.

In the upper Salmon River area there is a track that extends north east from Chatlees Road at 320800mE 5451400mN that should be investigated for occurrences of silica flour. The currently unexplored part of Bark Hut Road should also be investigated for occurrences of silica flour. Several more samples should be collected from the silica flour that occurs on the Salmon Road Siltstone so as to confirm that it is of no commercial interest.

7.0 Environmental matters

No environmental impacts were caused in the course of the work reported here.

8.0 References

Everard J. L., Reed A. R., Seymour D. B., Calver, C. R. 1999. Digital Geological Atlas 1:25 000 Series. Sheet 3243, Dempster. Tasmanian Geological Survey.

Everard J. L., Seymour D.B., Green D.C., McClenaghan M.P., Brown A.V. 1999. Digital Geological Atlas 1:25 000 Series. Sheet 3244, Sumac. Tasmanian Geological Survey.

McClenaghan M. P., Seymour D.B., Green D.C., Brown A.V. 1999. Digital Geological Atlas 1:25 000 Series. Sheet 3245, Roger. Tasmanian Geological Survey.

Nolan H. 1999. High purity silica flour deposits, Corinna, Tasmania. Unpublished report, Cominex.

Seymour D. B. and Calver C. R. 1995. Explanatory notes for the time-space diagram and stratotectonic elements map of Tasmania. Tasgo NGMA project. Tasmanian Geological Survey Record 1995/01.

Turner N. J. 1992. Corinna 1:50 000 geological map. Field guide to selected exposures. Tasmania Department of Mines 1992/06.

Turner N. J. 1997. Exploration Licence No. 61/94 Arthur River, Tasmania. Annual report 1996-1997. H. D. Nolan, Sorell.

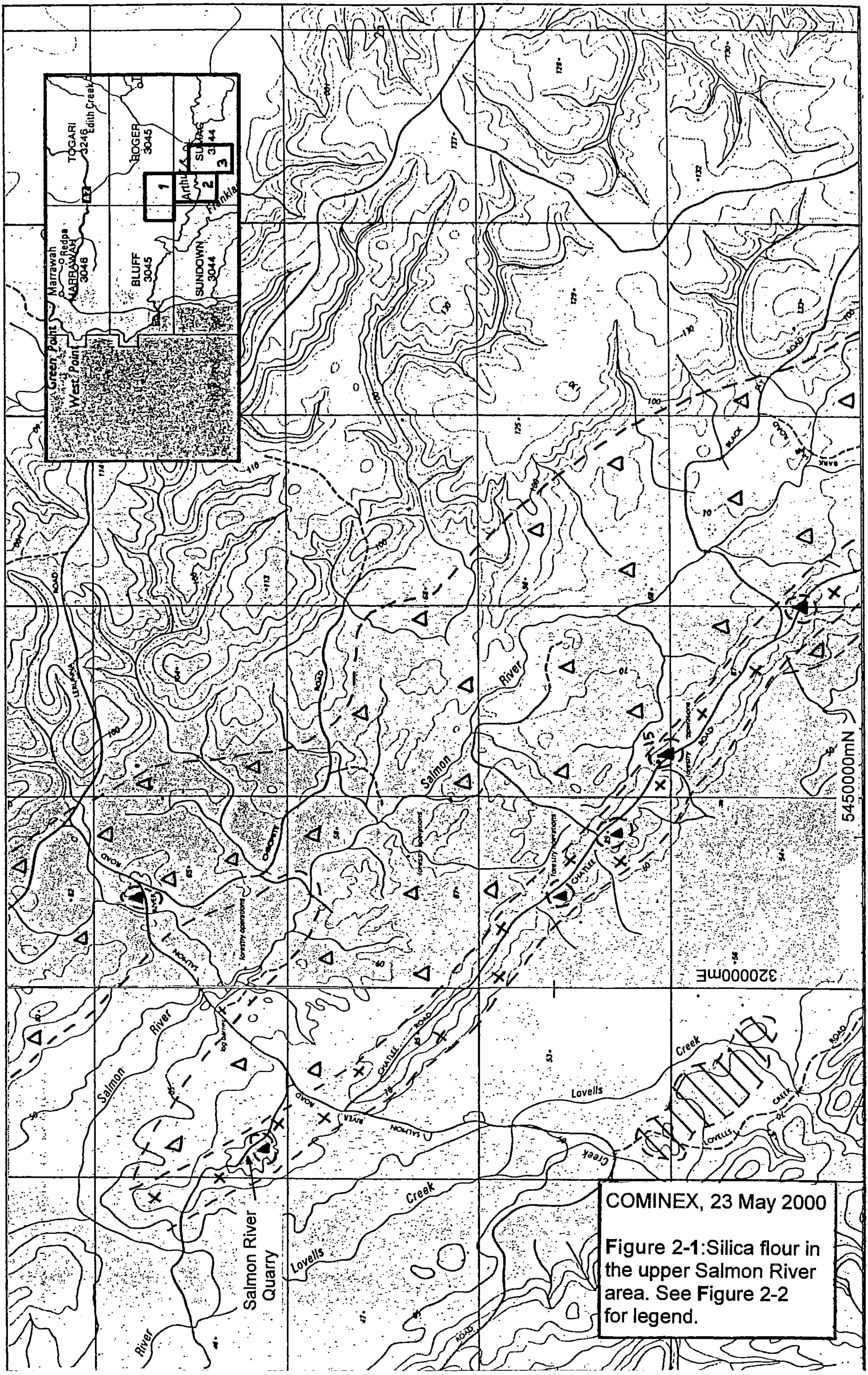

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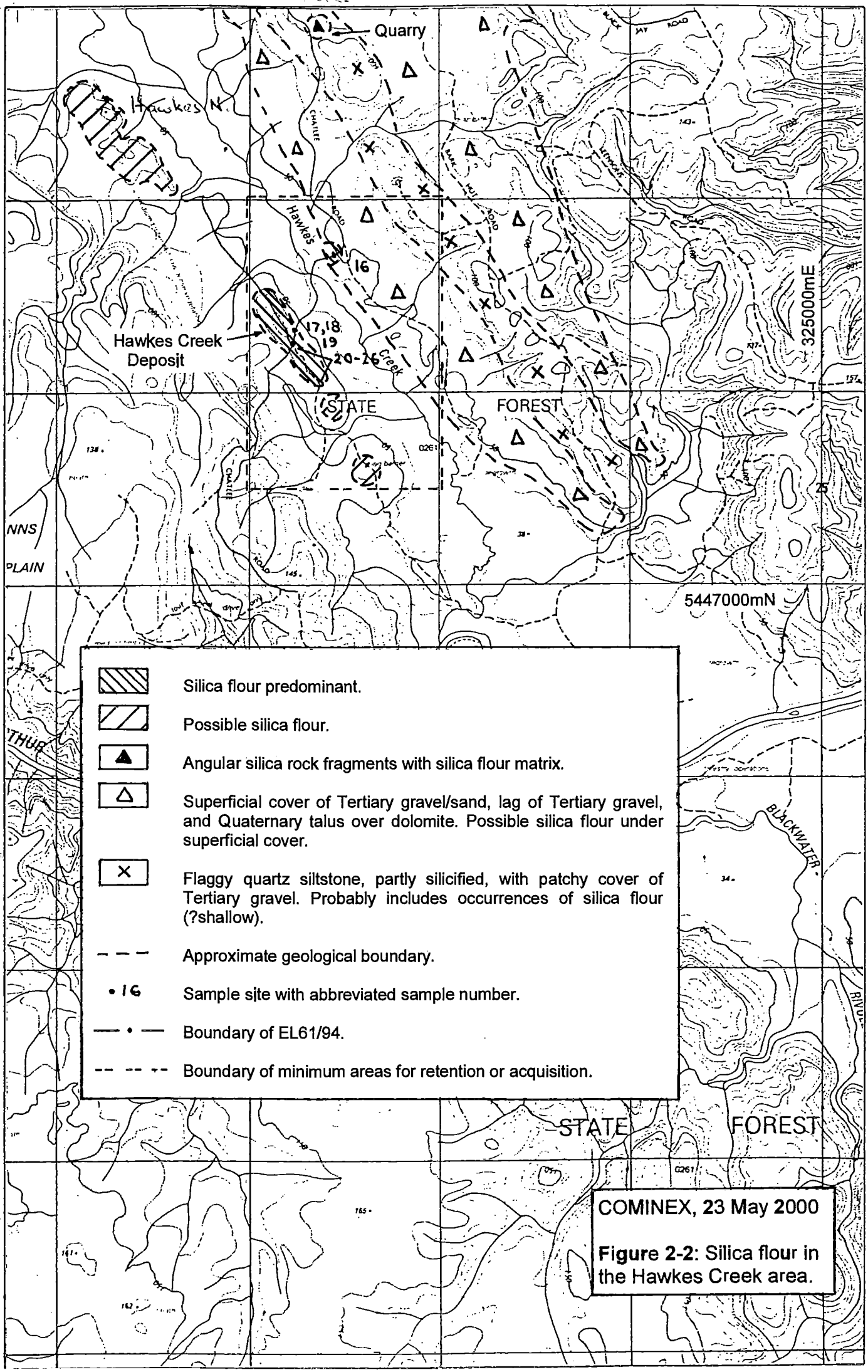
Figure 2-1:Silica flour in the upper Salmon River area. See **Figure 2-2** for legend.



COMINEX, 23 May 2000

Figure 2-2: Silica flour in the Hawkes Creek area.

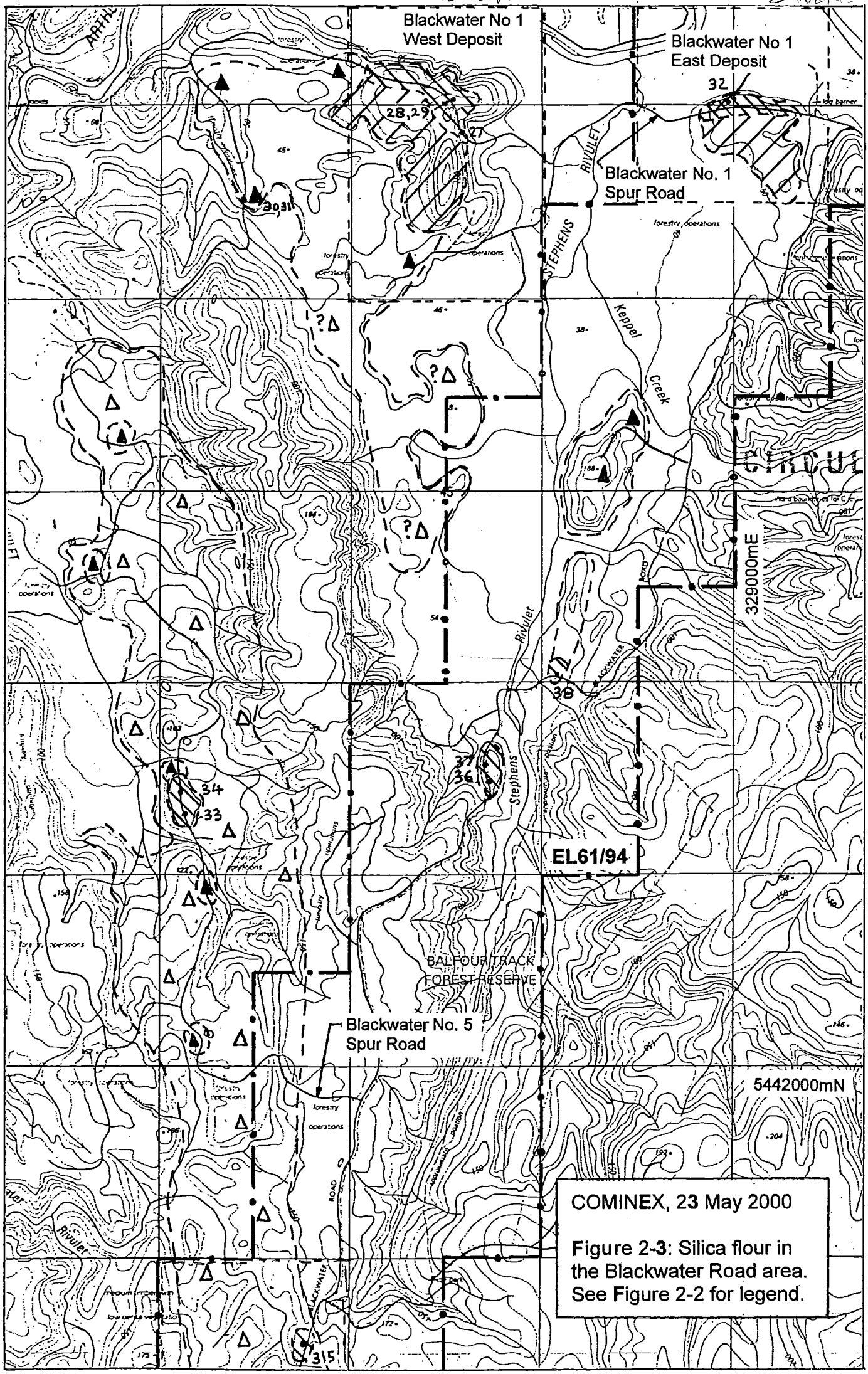


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Figure 2-3: Silica flour in the Blackwater Road area. See Figure 2-2 for legend.

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Appendix 1
Silica flour sample numbers, AMG co-ordinates of sample sites, analytical data.
EL61/94 and adjacent areas.

Analyst
Index Mineral Processors, Heybridge.

Silica flour samples, locations and analyses. EL61/94 Arthur River & adjacent areas, Cominex 31.05.2000 .

Sample	AMG co-ords		SiO2	Fe2O3	TiO2	Al2O3	CaO	MgO	Na2O	Mn	Cu	Cr	Ni
	E (m)	N (m)	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
AR015	321175	5451050	NA	65									
AR016	322450	5448725	NA	>65									
AR017	322250	5448325	NA	34									
AR018	322250	5448325	NA	24	160	107	303	15	30	0.2	0.35	2.4	0.13
AR019	322230	5448250	NA	24.5	150	95	196	9	31	0.15	0.27	0.22	0.3
AR020	322300	5448160	NA	35									
AR021	322300	5448150	NA	10.2	32	90	440	9	38	0.05	0.35	0.21	0.43
AR022	322315	5448125	NA	10.8	46	116	330	14	30	0.08	0.15	0.16	0.21
AR023	322320	5448110	NA	9.8	50	121	432	12	22	0.08	0.29	0.21	0.16
AR024	322325	5448100	NA	10.4	56	126	468	16	42	0.08	0.27	0.14	0.34
AR025	322360	5448070	NA	6.1	57	147	438	23	16	0.08	0.15	0.26	0.24
AR026	322375	5448050	NA	50.6									
AR027	327575	5446875	NA	43.2									
AR028	327525	5447025	NA	22.4	57	135	490	22	18	0.07	0.26	0.3	0.36
AR029	327525	5447025	NA	31.2									
AR030	326425	5446525	NA	32.5									
AR031	326425	5446515	NA	25.6	167	127	843	496	16	0.6	0.17	0.13	0.48
AR032	328925	5447025	NA	39.8									
AR033	326125	5443300	NA	16.6	172	122	940	563	17	0.1	0.25	0.28	0.42
AR034	326100	5443425	NA	17.6	110	58	663	197	11	0.2	0.17	0.24	0.01
AR035	326750	5440550	NA	11.7	125	85	437	80	6	0.15	0.2	0.07	0.25
AR036	327725	5443500	NA	100.6									
AR037	327710	5443600	NA	19.4	115	159	131	62	14	0.07	0.18	0.23	0.28
AR038	328050	5444025	NA	31									
20/250 Spec Max				20	40	100	400	200	10	0.5	0.5	0.2	0.1

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Appendix 2
Sample numbers, AMG co-ordinates, analytical data for two samples of silica sand collected from Blackwater Road by J. L. Everard, Mineral Resources Tasmania, Oct. 1998.

Analyst
Mineral Resources Tasmania, Hobart.

Silica sand samples, locations and analyses. Blackwater Road. J. L. Everard, Mineral Resources Tasmania, Oct. 1998.

Reg. No.	I.D.	AMG cc-ords		Type
		E (m)	N (m)	
961104	FJ 138	326420	5440160	?Tertiary
961105	FJ 200	327720	5443650	silica flour

Reg. No.	SiO2	TiO2	Al2O3	Fe2O3	FeO	MnO	MgO	CaO	Na2O	K2O	P2O5	SO3	CO2	H2O+	Total	L.O.I.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
961104	94.75	1.65	0.74	0.26	0	0.01	0.12	0.02	0	0.05	0.01	0.06	0.1	0.01	97.77	0.11
961105	97.96	0.02	0.1	0.12	0	0	0.02	0.02	0	0.01	0	0.05	0.08	0	98.38	0.08