

**MT CARELESS
EL 31/96
ANNUAL REPORT 1998**

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1. SUMMARY

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The 41 skm EL 31/96 (Mt Careless) covers Ordovician sediments 12 km south of the Beaconsfield Gold Mine.

The principal focus of work on the EL during 1998 has been geological mapping, complimented by rock and stream sediment sampling. The aim was to find gold mineralization, identify the main structural and stratigraphic elements of the geology, and clarify the correlation between the Mt Careless rocks and the Beaconsfield Mine sequence.

Despite the discovery of old workings (adits and shafts), and the taking of 201 rock samples and 131 sediment samples, no gold has yet been found on the Mt Careless EL.

Geochemically, the best results have been 3.77 ppb Au from a BLEG sediment sample and 0.06 ppm Au from a rock sample, both taken by Hart et al in 1997. This year, the only point of interest from 96 assay samples was that several rocks contained elevated arsenic, with a maximum of 948 ppm.

Work this year has shown that allowing for minor differences the Mt Careless Ordovician sediments can be correlated stratigraphically, lithologically and lithochemically with the Cabbage Tree Formation at Beaconsfield.

Other findings are the delineation of the Bald Tier Fault as a very large steeply east-dipping reactivated Devonian thrust, and identification from the magnetics of a series of major through-going cross-faults with the same NE heading as Beaconsfield's Tasmania Reef.

These latter structures are prospective where they offset shallowly-buried Ordovician rocks in the upper thrust block east of the Bald Tier Fault. Here, testing for gold along the structures is recommended using detailed magnetics (preferably airborne), soil sampling and RC drilling.

It is crucial for the future of the exploration programme that gold be located on the EL in the next round of work. Limited systematic rock and soil sampling is warranted around small old workings scattered along a 3 km NE trend just south of the Little Supply River and on the slope west of Brambles Quarry near the Biralee Road (the latter coincidentally the site of the 3.77 ppb Au BLEG sample).

Overall, Ordovician rocks in the upper thrust block east of the Bald Tier Fault are considered more prospective than those in the hematized sequence west of this thrust. Within the latter area, in the dissected and heavily sampled areas of the upper Supply River basin, any outcropping gold mineralization of significance should have been detected by the work done to date.

2. INTRODUCTION

EL 31/96 (Mt Careless) lies 12 km south of Beaconsfield in northern Tasmania. See Figure 1. The 41 skm licence is 100% owned by Allstate Explorations NL. It was taken up in late 1996 to search for Beaconsfield-style quartz vein gold deposits within Ordovician sediments considered correlates of those at the Beaconsfield Mine. The strategy was to try and locate additional ore sources within trucking distance of the mine, which is 51% owned by Allstate and due to commence production in mid 1999.

The EL covers the Supply River headwaters. The terrain is rugged with only foot access through dense vegetation in the central 50% of the licence (Plate 1). The eastern part of the EL is farmland with Ordovician rocks shallowly buried beneath Permian cover.

There are no records of mineral shows or previous mining within the EL although several old workings, mostly on quartz veins and therefore presumably for gold, have been found by Allstate's field surveys. Extensive quarrying occurs at several places, excavating silica, sand and gravel for concrete aggregate and road-base materials. The quarries provide excellent exposures of the basal unit in the Ordovician stratigraphy (Plates 2 & 3).

Mt. Careless was largely ignored by mineral explorers prior to 1996. BHP held the area under EL 14/65 in 1965-67 and sampled two small stream catchments for basemetals without significant results (Gebert, 1967). In 1988 the area was covered by a regional aeromagnetic survey for Beaconsfield Gold NL although they never took up the ground.

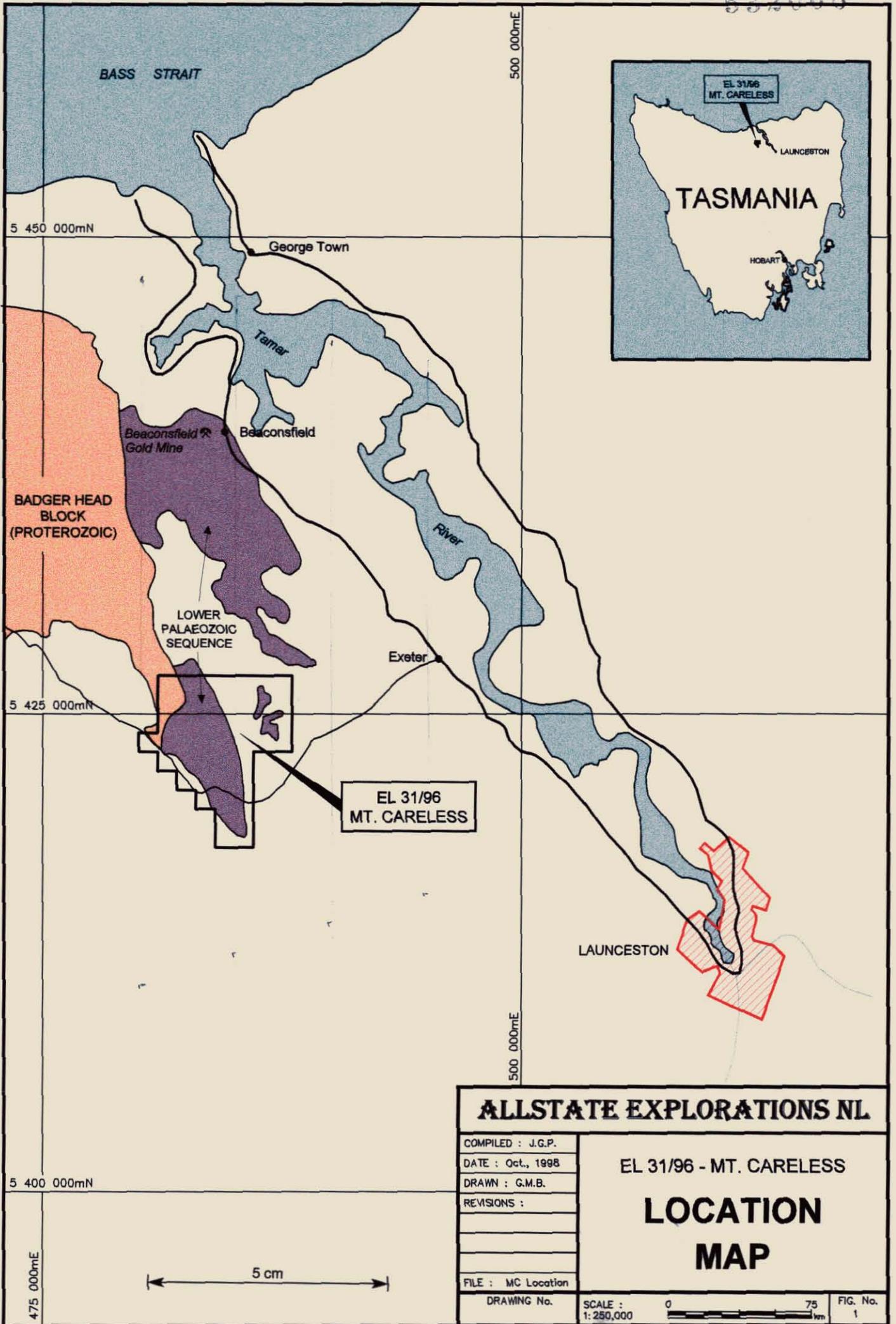
Allstate started exploration on EL 31/96 in November 1996. Work to November 1997, a BLEG stream sediment survey augmented by limited rock sampling and mapping, was reported by Hart et. al. (1997). Results were poor, with the best BLEG value 3.77 ppb Au from a tiny creek near the southern EL boundary and the best rock value only 0.06 ppm Au. The survey highlighted difficulties in correlating the Ordovician at Mt Careless with that at Beaconsfield. It was decided the next phase of work should concentrate on mapping to resolve these questions, as well as continuing the geochemical search for gold.

This report details exploration done between February and August 1998, comprising:

- detailed mapping, mainly of creek traverses and quarry exposures
- rock sampling
- limited -80mesh stream sediment sampling (an efficacy test of the BLEG survey)
- litho-geochemical and petrological studies to assist rock correlation
- a structural interpretation using airphotos and re-imaged 1988 aeromagnetic data.

Fieldwork was undertaken by Gerald Purvis and David Atchison, the latter as part of his B.Sc. Honours Thesis (University of Tasmania) on the geology of the Mt Careless area (in prep). Atchison's contribution, particularly his mapping of the quarry exposures, is acknowledged. Discussions in the field with Peter Hills, Grant MacDonald and Ken Morrison assisted in developing an understanding of the geology.

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ALLSTATE EXPLORATIONS NL	
COMPILED : J.G.P.	EL 31/96 - MT. CARELESS LOCATION MAP
DATE : Oct., 1998	
DRAWN : G.M.B.	
REVISIONS :	
FILE : MC Location	
DRAWING No.	SCALE : 1:250,000
	FIG. No. 1



Plate 1. View NW from Jetsons Quarry showing the upper Supply River catchment, Kellys Lookout in centre distance, with Mt Careless to the left and Bald Tier to the right.



Plate 2. Frankford Quarry. Excavated in basal Ordovician hematized quartz conglomerate and sandstone (Frankford Siliciclastics). View looking NE, Mt Careless in centre distance.

3. LAND TENURE

EL 31/96 (Mt Careless) of 41 skm was granted to Allstate Explorations NL on 8th November 1996. The licence is due to expire on 8th November 2001.

The expenditure commitment for the first two years tenure is \$30,750. This commitment has been met (see Section 11).

The granted area of EL 31/96 covers 41 skm of Crown Land, State Forest - Multiple Use Forest Land, State Forest - Informal Reserve, and private property.

Within the EL boundaries but excluded from it are 101 ha of Mining Leases (the silica gravel quarries), the 344 ha Mt Careless Forest Reserve and a 25 ha Crown Reserve.

4. GEOLOGY

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The interpretative geology of the EL is shown in Figure 2.

In broad terms, Mt Careless lies within the series of SW-directed NE-dipping thrusts that mark the boundary between the Western Tasmania Terrane and the Eastern Tasmania Terrane.

North-west and west of the EL are Upper Proterozoic sediments of the Badger Head Block, extensively covered by Jurassic dolerite and Permian sediments. The Proterozoic rocks extend onto the NW corner of the EL, where they comprise a folded sequence of phyllitic quartz-mica sandstones and siltstones, with interbeds of black shale.

The central part of the Mt Careless EL covers moderately east-dipping Ordovician sediments that lap unconformably onto the Proterozoic (Gulline, 1981). In ascending stratigraphic order the Ordovician comprises quartz conglomerate, quartz sandstone ("quartzite"), quartz-mica sandstone and siltstone. These rocks are characteristically mildly hematized giving them a pale pink to red or purple-brown colour.

Along the SW edge of the EL and on Bald Tier in the north, the Ordovician rocks are unconformably overlain by a flat-lying Permian sequence of mudstone, siltstone and sandstone, commonly fossiliferous and often containing pebbles or cobbles, especially at the base. To the east, the main Ordovician exposure terminates along a major NNW-trending structure: the Bald Tier Fault.

The eastern 40% of the EL covers the down-thrown block east of the Bald Tier Fault and about 90% of this area is covered by flat-lying Permian rocks. In places Ordovician (and possible Cambrian) rocks protrude through this cover which the aeromagnetics indicate is generally shallow. The Ordovician comprises steeply-dipping quartz sandstone with quartz pebble conglomerate bands, quartz-mica sandstone and siltstone. Lithologically, the rocks are almost the same as the Ordovician units west of the Bald Tier Fault but they lack any hematization, being dark grey with minor carbonaceous / graphitic material.

Some of these exposed eastern Ordovician rocks are identical to parts of the Cabbage Tree Formation hosting the Beaconsfield gold deposit and have been mapped as such by Gulline et al (1973). Although dislocated by faults, including the thrusts, continuous outcrop of the Ordovician sediments commences about 1km north of the Mt Careless EL and extends 11 km north to Beaconsfield (see Figure 1). Immediately south of the EL the Ordovician sediments and the overlying Permian pass beneath thick Jurassic Dolerite.

Aeromagnetic data shows that the Cambrian Andersons Creek Ultramafics, outcropping west of Beaconsfield, have a long thin south-eastward sub-surface extension which terminates abruptly in the vicinity of the northern boundary of the Mt Careless EL. The Bald Tier Fault coincides with the western margin of the ultramafic body, an association confirming the fundamental nature of this structure.

5.1 INTRODUCTION

Given budget constraints, no attempt was made to systematically map the EL. Initial effort was directed at mapping the poorly-known upper catchment of the Supply River. Two weeks was spent traversing this rugged and inaccessible area. Later mapping concentrated on quarry exposures with selected traverses elsewhere. This work was complimented by a structural interpretation based on aerial photographs and re-imaged 1988 aeromagnetic data.

The detailed traverse mapping is shown in Figures 3 to 6. The interpreted geology of the entire EL is shown in Figure 2, incorporating additional data from the aeromagnetics, aerial photographs and mapping by Gulline et al (1973).

During mapping, rock samples were collected for assay (79), lithogeochemistry (49), petrology (14), fossil identification (1) and heavy mineral study (the latter will be reported by Atchison in his thesis). The lithogeochemistry has been used to support some of the divisions and correlations made in compiling the stratigraphy presented below. Assay and lithogeochemical results are discussed in Section 6. Petrological descriptions appear in Appendix 3.

The names Bald Tier Fault, Supply River Sandstone, Little Supply Siltstone and Frankford Siliciclastics, are used to describe major features or units of the local geology that have not previously been given formal names.

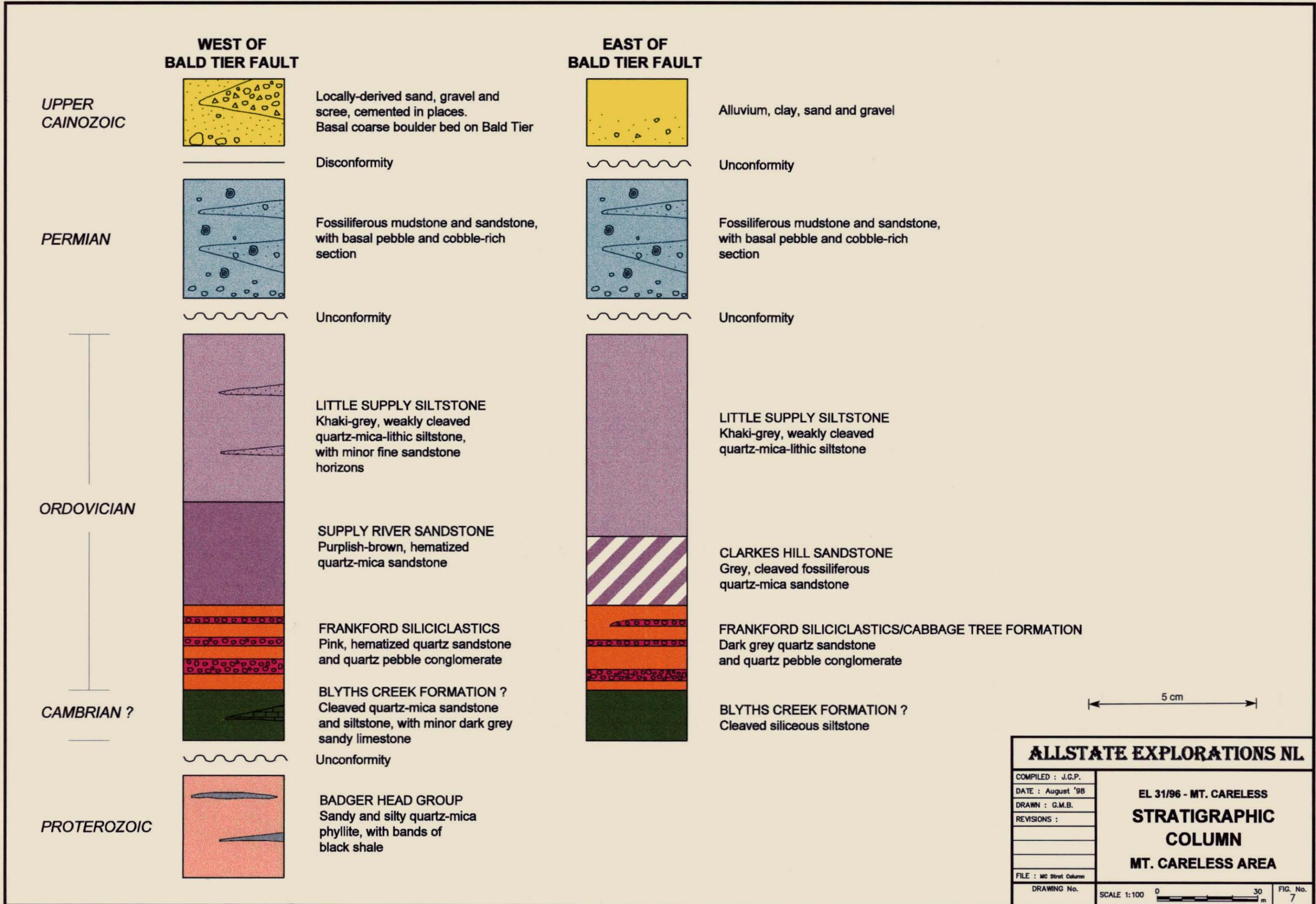
The stratigraphic column for the Mt Careless Area is shown in Figure 7. The Ordovician shows a marked upward-fining from conglomerate at the base to siltstone at the top. On the basis of their appearance and the apparent substantial movement on the Bald Tier Fault, the Ordovician rocks are divided into two groupings: the hematized sequence west of the fault and the unhematized rocks east of it. Apart from the Supply River Sandstone unit which seems to be unique to the area west of the fault, these two groupings are believed to be the same sequence and the differences between them superficial. As will be discussed, this conclusion is supported by the lithogeochemical data.

The rock units are described below in order from oldest to youngest.

5.2 STRATIGRAPHY

5.2.1 Proterozoic

Proterozoic sediments of the Badger Head Group are found on the EL west of the Bald Tier Fault, covering about 3 km west and north-west of Mt Careless itself. They comprise sandy and silty quartz-mica phyllites with interbedded dark grey to black carbonaceous phyllitic siltstones and shales, some of which are pyritic. The rocks strike NW, dip steeply and are folded. They contain numerous quartz veins, (up to 1.5m wide in D2 faults) and in a few places these have been prospected by the old-timers, eg: the 22m long Penningtons Adit near Frankford Quarry.



ALLSTATE EXPLORATIONS NL	
COMPILED : J.G.P.	EL 31/96 - MT. CARELESS STRATIGRAPHIC COLUMN MT. CARELESS AREA
DATE : August '98	
DRAWN : G.M.B.	
REVISIONS :	
FILE : MC Strat Column	
DRAWING No.	SCALE 1:100
	FIG. No. 7

The Proterozoic rocks are distinguished from the Ordovician mainly by their well-developed cleavage, but also by their folding, presence of black shale and lack of hematization. As can be seen in the lithochemical plots (eg: Figure 11) the provenance of the Proterozoic appears very similar to some of the Ordovician units, particularly the Supply River Sandstone.

5.2.2 ?Cambrian: Blyths Creek Formation?

In the Supply River immediately north of Mt Careless there is a 250m long poorly exposed section between the Proterozoic and the basal Ordovician. The rocks here comprise grey weakly cleaved quartz-mica sandstones and siltstones, with a small outcrop of dark grey sandy micaceous limestone - one of only two limestone occurrences found on the EL. For the petrological description of this limestone see sample 661290 in Appendix 3.

Gulline et al (1973) mapped a small exposure of Cambrian sediments in the Supply River upstream of the South Winkleigh Road. Where examined immediately upstream of the bridge, the rocks are strongly cleaved greenish-grey siliceous siltstones but Gulline describes the overall exposure as brown to black siltstone, folded and in part overturned. It is possible these rocks are deformed Little Supply Siltstone (see 5.2.5) as a large NE-trending structure is interpreted in this vicinity (see Figure 2 and Section 7). Their lithochemical signature supports this correlation (see Section 6).

5.2.3 Basal Ordovician: Frankford Siliciclastics

This very hard, variably silicified unit forms prominent ridges and is best exposed in the numerous quarries developed in it. It comprises interbedded quartz conglomerate and quartz sandstone, sometimes occurring in graded beds with conglomerate fining upwards into the sandstone. Quartz veining is common in both rock types.

The conglomerate is largely composed of sub-angular to well-rounded pebbles of quartz, quartzite and chert, generally <3cm in size (much is actually microconglomerate). It ranges from clast-supported types with very subordinate sandy quartzose matrix, to those comprising clasts surrounded and supported by quartz sandstone. The stratigraphically lowest, largest and coarsest exposures of conglomerate are in the western end of the Frankford Quarry, where it forms massive bands in the order of 5-15m thick with clasts up to 16cm in size. Here, the conglomerate-dominated section is about 70m thick (Plates 3 & 4).

The quartz sandstone (field term: "quartzite") is almost entirely composed of fine to coarse grains of quartz. Current bedding was noted in this unit on Clarkes Hill and in Brambles Quarry off the Biralee Road. In the vicinity of conglomerate beds the sandstone commonly contains small isolated quartz pebbles. An exposure of the sandstone is

shown in Plate 5.

West of the Bald Tier Fault the Frankford Siliciclastics are generally hematized pale pink to red (Plate 6), although substantial exposures with white or pale grey colouration also occur. East of the fault these rocks are only exposed on Clarkes Hill, where they have the dark grey-black colour typical of similar lithologies in the Lower Transition Beds unit of the Cabbage Tree Formation at Beaconsfield Mine (Salisbury Hill Formation of Lewis, 1998). The dark colouration is due to small amounts of carbonaceous or graphitic material, often accompanied by pyrite. On Clarkes Hill the conglomerate contains visible grains of detrital chromite and the sandstone is strongly jointed (Plate 7).

In two places west of the Bald Tier Fault hematized and dark Transition Beds-like weakly-carbonaceous sandstone/conglomerate occur in intimate association. These occurrences are in the creek draining east from the Frankford Quarry and in Brambles Quarry off the Biralee Road. In Brambles Quarry both hematized and dark carbonaceous sandstone in some cases occur within the same bed. Here, the hematization is clearly overprinting and replacing the carbonaceous colouration (Plate 8).

It is thus concluded that much if not all, of the hematized Frankford Siliciclastics west of the Bald Tier Fault may originally have had the dark carbonaceous appearance typical of the Lower Transition Beds of the Cabbage Tree Formation at Beaconsfield.



Plate 3 Massive quartz conglomerate of the Frankford Siliciclastics. Frankford Quarry.



Plate 4 Hematized quartz conglomerate of the Frankford Siliciclastics. Brambles Quarry. looking north.



Plate 5 Cliffs of quartz sandstone of the Frankford Siliciclastics. Upper Supply River.

Plate 6 Sericitic shear in hematized quartz sandstone of the Frankford Siliciclastics, Frankford Quarry.





Plate 7 Pavement of strongly jointed near-vertical quartz sandstone of the Frankford Siliclastics /Cabbage Tree Formation, Clarke's Hill.

Plate 8 Hematization (left) overprinting and replacing primary dark carbonaceous colouration in quartz sandstone of Frankford Siliclastics, Brambles Quarry.



This unit is only known west of the Bald Tier Fault, where it occupies much of the upper Supply River valley. It is a uniform, blocky, fine to medium grained quartz-mica-lithic sandstone with characteristic slight purplish-brown colouration due to mild hematization. It can be very hard and siliceous, forming cliffs in places. Although there are slight grainsize variations, the unit contains almost no interbeds of any other lithology, a uniformity confirmed both petrologically and lithogeochemically - see Section 6.

On Clarkes Hill east of the Bald Tier Fault, a grey fossiliferous quartz-mica sandstone stratigraphically overlies the Frankford Siliciclastics. This cleaved sandstone is not hematized and is less siliceous than typical Supply River Sandstone. Although it is apparently a stratigraphic correlate of the latter, lithogeochemically the Clarkes Hill sandstone does not have the same signature, showing more affinity with the Little Supply Siltstone - see Section 6. The fossils, comprising fragments of brachiopods and other fauna, have been sent for formal identification.

5.2.5 Little Supply Siltstone = Reillys Creek Siltstone (TCR 991-4384)

This unit occupies much of the southern part of the EL west of the Bald Tier Fault, especially along the Little Supply River. It was also noted just north of Clarkes Hill east of the fault. It is a pale khaki-brown or khaki-grey quartz-mica-lithic siltstone, occasionally weakly hematized to a pale pink colour. It is often very slightly sericitic and greasy, one reason it is generally well weathered and poorly exposed. The unit contains minor bands of fine sandstone which appear to simply be a coarser variant of the siltstone.

The Little Supply Siltstone has two defining characteristics: a weak to moderately developed bedding-parallel cleavage and abundant tiny stratiform lenses of friable leached limonitic material possibly after carbonate (Plate 9).

Macroscopically-identical siltstone, complete with the leached limonitic lenses, occurs at Bulls Road (5430900N / 487000E) on Beaconsfield Gold NL's adjacent EL 19/97 (Winkleigh). Here the siltstone contains brachiopod fossils including *Nanorthis carinata* which gives a basal Ordovician age (486 Ma) and supports its mapped inclusion within the Cabbage Tree Formation (Laurie, 1996a). *Nanorthis carinata* has also been identified at Beaconsfield Mine in the basal section of the Upper Transition Beds unit of the Cabbage Tree Formation (P.Hills pers. comm., 1998), and in the identical stratigraphic position in Middle Arm Gorge 2km south of Beaconsfield (Laurie, 1996b).

K.Morrison (pers. comm., 1998) considers the leached limonitic lenses in both the Bulls Road Siltstone and the Little Supply Siltstone are due to bioturbation. No fossils have yet been found in the Little Supply Siltstone.



Plate 9 Typical Little Supply Siltstone, showing leached limonitic lenses possibly after carbonate (bioturbation?).

5.2.6 Cover Rocks: Permian and Upper Cainozoic

Flat-lying Permian fossiliferous mudstone and sandstone cover much of the Ordovician, particularly east of the Bald Tier Fault. In most cases the Permian rocks sit unconformably on an irregular surface developed on the Ordovician. At Clarkes Hill and elsewhere, the Permian has been eroded sufficiently for the older rocks to protrude through the cover which the aeromagnetics show is very thin over large areas.

The basal Permian is marked by the presence of abundant rounded siliceous pebbles and cobbles within the sandstone and mudstone, and in places there is conglomerate and glacial tillite according to Gulline (1981). On Bald Tier, quarries are working rather friable horizontally bedded coarse quartz sands of local Ordovician derivation. In Cahills Quarry just north of the EL boundary this material includes a basal layer of Ordovician conglomerate and sandstone boulders up to 4m x 3m, sitting on a surface of highly fractured Ordovician quartz sandstone. Alluvial gold has been reported at this locality (Plate 10).

According to K.Morrison (pers. comm., 1998), these Bald Tier exposures are atypical of the Permian and are probably Upper Cainozoic. However, similar but finer and harder flat-lying pebble-

bearing sandstone outcrops on the Bald Tier Fault scarp immediately beneath these quarry exposures. This is certainly Permian and here sits directly on a 50m x 2m exposure of steeply dipping pale grey Ordovician limestone.

Immediately south of the Frankford Quarry there are extensive outcrops of flat-lying Upper Cainozoic cemented breccio-conglomerate, composed of locally-derived Ordovician material.



Plate 10 4m x 3m boulder of Ordovician quartz conglomerate in basal Permian or Upper Cainozoic boulder bed sitting on fractured Ordovician quartz sandstone. There are unconfirmed reports of alluvial gold at this locality. Cahills Quarry, Bald Tier.

5.3.1 General

The dominant structural feature of the Mt Careless area is the NNW-trending near-vertical Bald Tier Fault. For reasons outlined below and in Section 7 it is believed to be a reactivated major thrust. There are many changes in the local and regional geology across this structure, some of which have been catalogued in Section 5.2 above. The variations evident in the Ordovician rocks either side of the fault include their attitude.

The ground trace of the contact between the Proterozoic and the Ordovician suggests this is an unfaulted unconformity (as mapped by Gulline, 1981). The sinuous contact cuts sharply across the folded NW-striking Proterozoic sediments and parallels the strike of the adjacent Ordovician rocks.

West of the fault the Ordovician sequence faces and dips east at angles averaging 30-50°. The rocks are essentially unfolded apart from local small-scale folding adjacent to faults and this is confirmed by the general lack of cleavage development (except weakly in the Little Supply Siltstone).

East of the Bald Tier Fault the Ordovician sediments on Clarkes Hill are overturned, dipping east at +80° but facing west. These rocks have a well developed 50° east-dipping cleavage indicating they lie on an overturned western anticlinal limb. The steep dip and large-scale folding is in marked contrast to the rocks west of the fault.

Contacts between the various Ordovician units are not exposed. Originally the boundaries were apparently conformable and possibly gradational, as overall, adjacent units are conformable and define an upward-fining sequence. However, the stratigraphy is now cut up by large faults, some of which occupy the unit contacts (Figure 2). Prominent among the faults is a major NW-trending structure extending from the Bald Tier Fault and passing through the Frankford Quarry where it bounds a small graben filled with Permian sediments.

The course of the upper Supply River is determined by major faults trending NW and N-S. The very linear NE trend of the Little Supply River is controlled by a NE set of strong structures seen on the magnetics but not on the ground. The excellent quarry exposures show that the basal Ordovician is disrupted by numerous shears and bedding-parallel normal and reverse faults (Plate 6).

West of the Bald Tier Fault a major east-dipping stratiform thrust is inferred at the top of the Little Supply Siltstone where it is in contact with, and structurally overlain by, Frankford Siliciclastics making up the eastern ridge extending between Brambles and Jetsons quarries. This structure is invoked because:

1. this eastern conglomerate and sandstone sequence is identical to the

basal Ordovician exposed in the Frankford Quarry.

2. Nowhere else in the Ordovician in Tasmania is there a second unit of conglomerate high in the sequence.

5.3.2 Bald Tier Fault

The NNW-trending Bald Tier Fault has major topographic expression, forming a 100m high scarp on Bald Tier where it chops off the Supply River Sandstone. Correlation of Permian units indicates the block east of the fault has been down-thrown a minimum of 150m and probably in excess of 200m. This post-Permian fault movement was part of that associated with the development of the Tamar Basin (Leaman, 1998).

South of Bald Tier the fault also terminates the band of Frankford Siliciclastics extending north from Brambles Quarry to Jetsons Quarry adjacent to the fault. In Jetsons Quarry the sequence has been pulled up into a large synclinal drag fold against the fault, with the rocks dipping steeply east but facing west. This indicates east block up movement on the Bald Tier Fault, pre-dating and the reverse of the post-Permian movement now evident topographically. This earlier movement of the fault has the same sense as the mid-Devonian thrust package that dominates this part of northern Tasmania, including Beaconsfield.

The magnetics show that north of the Mt Careless EL the Bald Tier Fault trace runs along the sharp western boundary of the buried SE extension of the Andersons Creek Ultramafics. This long thin extension has a shape suggestive of a fault slice and terminates abruptly beneath the northern boundary of the EL (Figure 15). Almost certainly the fault and the ultramafic complex are associated, with the latter caught up in the structure at depth.

It is concluded that the Bald Tier Fault is a very large steeply east-dipping Devonian thrust reactivated by post-Permian normal fault movements.

5.3.3 Jointing

Jointing is a conspicuous feature of all the Ordovician rocks except the Little Supply Siltstone, and is best developed in the Frankford Siliciclastics (particularly on Clarkes Hill, see Plate 7). The jointing is most commonly broadly orthogonal to bedding, both that which is orthogonal to bedding in strike and dip, and that which is parallel to rock strike but orthogonal to dip. Members of the former set include some with headings similar to the fissure hosting the Tasmania Reef at Beaconsfield. A minority of joints host thin quartz veins.

Signs of mineralization, including pyrite, are very sparse in the Mt Careless area. The presence of gold has yet to be confirmed despite comprehensive rock and sediment sampling, the discovery of unrecorded old workings in several places and reports of gold from local people.

Quartz veining is common in both the Ordovician and Proterozoic sequences, especially in fault zones and axes of small folds. In places individual veins are over 1m wide. Some of the smaller veins have the Tasmania Reef trend (040° AMG). In a tributary draining south from Bald Tier to the Supply River a major N-S trending fault in the Supply River Sandstone hosts a 5m zone of large quartz veins containing minor pyrite, flanked by a 30m horst of quartz-flooded and veined quartz sandstone, also with minor pyrite. The zone is non-auriferous.

Old workings occur in the Proterozoic and the Ordovician, most in the Little Supply Siltstone. All are shown on Figure 2. Four adits are known, three in the Little Supply Siltstone and one in the Proterozoic. Three have been examined, sampled and mapped this year, and have been named after their present owners (Pennington and Payne) or, where known, the original miner (Wing) (Figures 8-10). The longest adit is Paynes Adit at 46m. All these adits have been driven to test limonitic quartz veins that lie broadly parallel to cleavage and bedding and in Paynes Adit two shallow winzes were sunk on veins up to 1m thick.

A fourth adit, in the Little Supply Siltstone, was found by Hart et al (1997) in a southern tributary of the Little Supply River. They sampled non-auriferous quartz vein material on the dump but weren't equipped to enter the adit. This adit was not relocated this year due to the thick undergrowth.

Several collapsed shafts have been found, all in the Little Supply Siltstone and some close to the adits mentioned above. Montys Shaft NW of Brambles Quarry and the shaft on the hill 350m north of Paynes Adit are unusual in that both have no quartz on the dumps, although the size of the latter suggests this shaft was +20m deep (Plate 11).

Most of the old workings fall into three geographic groupings, the most important of which is a 3km long NNE trend (roughly 030° AMG), extending from Paynes Adit near the Frankford Cemetery to Wings Adit near Jetsons Quarry against the Bald Tier Fault. This trend parallels the Little Supply River and includes three adits, at least five shafts, and numerous pits and trenches, including a group reputedly bulldozed over on the slope immediately NE of the Frankford Cemetery (R.Blackberry & R.Frost pers. comm., 1998).

A second area of workings is in Little Supply Siltstone on the slope west of Brambles Quarry, adjacent to the inferred thrust mentioned in Section 5.3.1. Although only Montys Shaft, two pits and a small trench have been found here, there are reputed to be many more shafts (M.Blackberry pers. comm., 1998). Local talk has it that this ridge was known as "Goldmine Hill" (M.Morris pers. comm., 1998).

The third area of old workings is in the Proterozoic on Kellys Lookout. These rather extensive lines of shallow pits and trenches were found by Hart et. al. (1997). Surprisingly, they took only one rock sample (negative result). These workings were not revisited this year.

Gold has recently been reported in material draining from a quarry 600m north of the EL boundary on Bald Tier (W.Cahill pers. comm., 1998). This quarry has a locally derived very coarse basal Permian or Upper Cainozoic boulder bed sitting in a gutter over a highly fractured zone in the underlying Ordovician quartz sandstone (Plate 10). It is entirely conceivable that detrital gold could occur in such a coarse gutter. However, sampling and panning both the gravel surrounding the boulders and the material draining from the quarry at exactly the same sites as the gold was reportedly obtained, returned negative results.

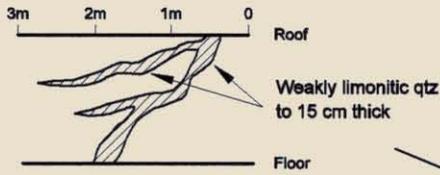


*Plate 11 Old shaft (foreground) and dump.
400m NW of Frankford Cemetery.*

481 100mE

532024

VIEW OF WEST WALL



LEGEND

PROTEROZOIC (Badger Head Group)

 SANDY QUARTZ-MICA PHYLLITE
Pale grey, massive and hard

 SILTY QUARTZ-MICA PHYLLITE
Pale grey

 STRONGLY CLEAVED DARK GREY SHALE
Moderately to strongly sericitized

 Bedding
65

 Cleavage
48

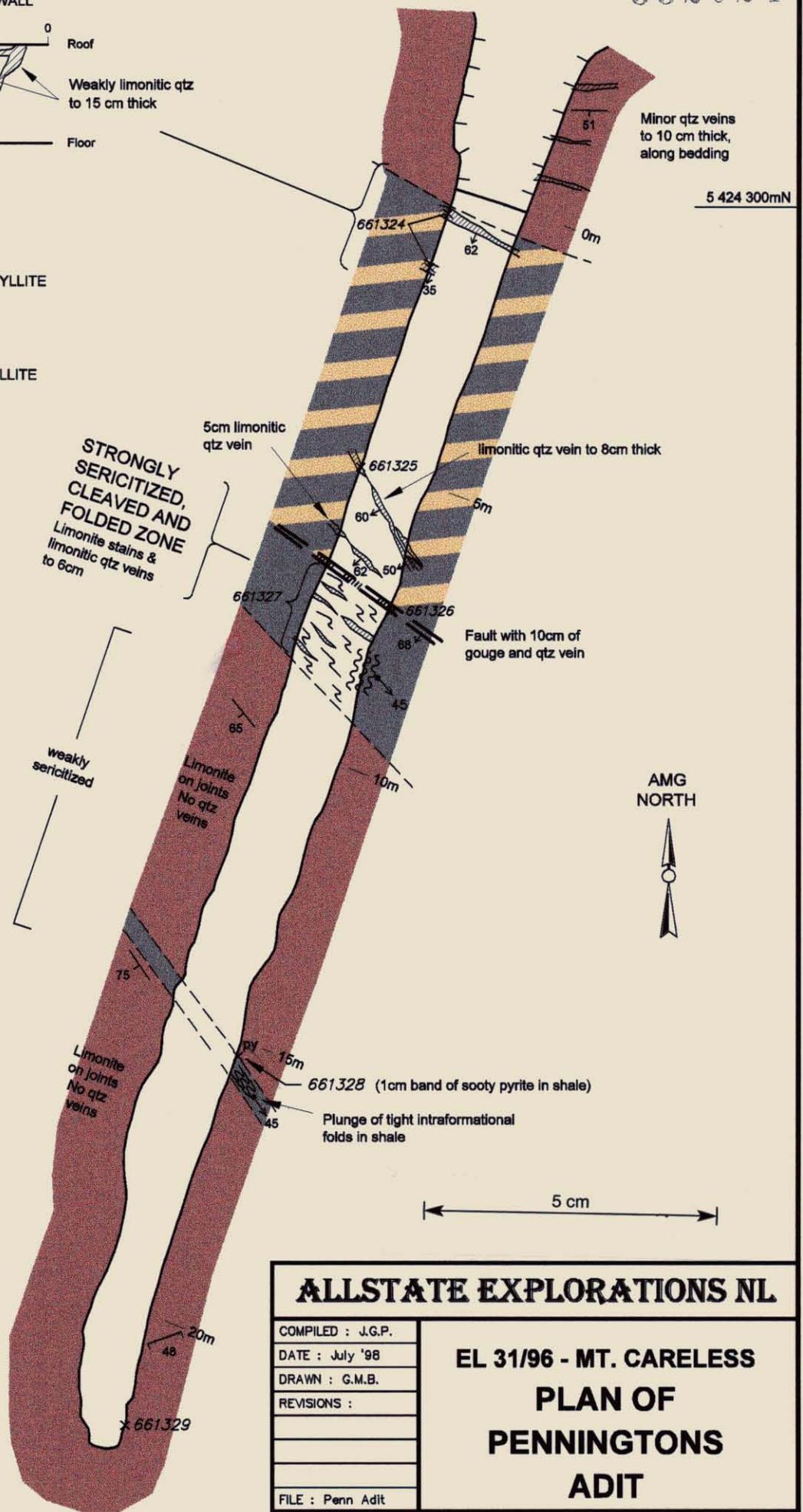
 Quartz vein (with attitude where measured)
80

× 661327 Rock chip sample

 Folding (with attitude of plunge where measured)
45

 Geological contact

 Fault with dip
68



ALLSTATE EXPLORATIONS NL

COMPILED : J.G.P.

DATE : July '98

DRAWN : G.M.B.

REVISIONS :

FILE : Penn Adit

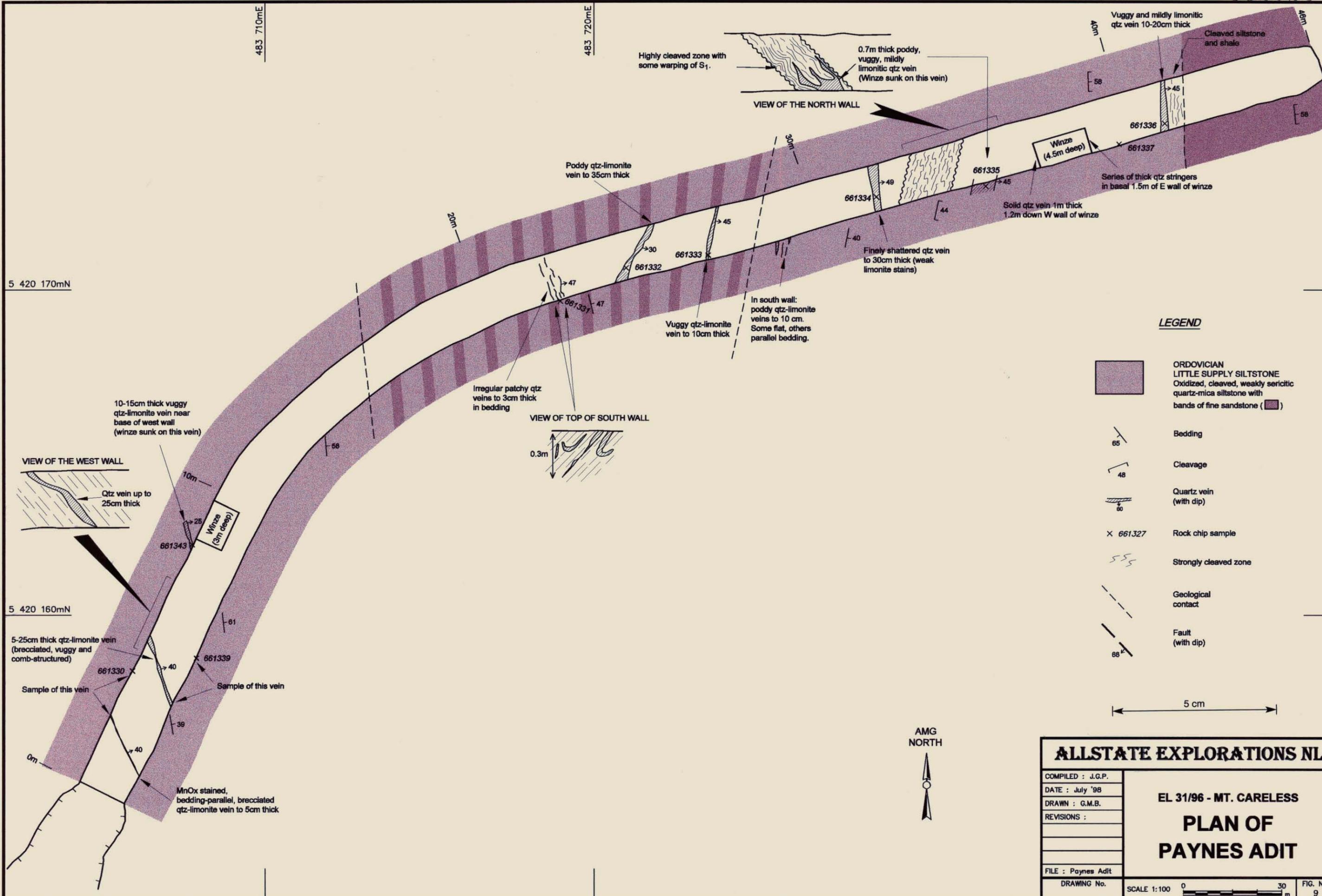
DRAWING No.

EL 31/96 - MT. CARELESS
PLAN OF
PENNINGTONS
ADIT

SCALE 1:100



FIG. No. 8



LEGEND

-  ORDOVICIAN LITTLE SUPPLY SILTSTONE
Oxidized, cleaved, weakly sericitic quartz-mica siltstone with bands of fine sandstone ()
-  Bedding
-  Cleavage
-  Quartz vein (with dip)
-  661327 Rock chip sample
-  Strongly cleaved zone
-  Geological contact
-  Fault (with dip)

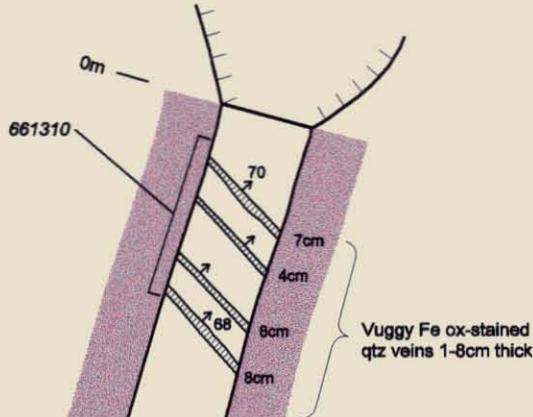
5 cm



ALLSTATE EXPLORATIONS NL	
COMPILED : J.G.P.	EL 31/96 - MT. CARELESS PLAN OF PAYNES ADIT
DATE : July '98	
DRAWN : G.M.B.	
REVISIONS :	
FILE : Paynes Adit	SCALE 1:100 
DRAWING No.	
FIG. No. 9	

485 020mE

AMG NORTH



**GREASY,
CLEAVED
QUARTZ-MICA
SILTSTONE**

**ROTTEN FINE
QUARTZ-MICA
SANDSTONE**

LEGEND



ORDOVICIAN
LITTLE SUPPLY SILTSTONE
Oxidized, cleaved, weakly sericitic,
quartz-mica siltstone with
bands of fine sandstone



Bedding



Cleavage



Quartz vein
(with dip)



Rock chip sample

Pile of dirt to within
0.4m of roof

20m

Warping
of S_0/S_1

→15
X 661311

Fall area with
gouging in walls

25m

Mounds of dirt
0.5m high

5 cm

5 422 910 mN

ALLSTATE EXPLORATIONS NL

COMPILED : J.G.P.

DATE : July '98

DRAWN : G.M.B.

REVISIONS :

FILE : Wings Adit

DRAWING No.

EL 31/96 - MT. CARELESS

**PLAN OF
WINGS ADIT**

(JETSONS FARM)

SCALE 1:100



FIG. No.
10

6. GEOCHEMICAL SAMPLING

532027

6.1 ASSAY RESULTS

A total of 79 rock samples, 13 -80 mesh stream sediments and 4 limonitic seep samples, were sent for assay during the 1998 programme. The samples were analysed by Analabs for Au by fire assay, Cu, Pb, Zn, Ag, As and S. Results are listed in Appendices 1, 2 & 4.

Results were very poor despite most of the rocks having been taken from quartz veins including those in the old workings. Of the 79 rocks only *one* was above the 0.01 g/t detection limit (0.02 g/t!). Base metals assays were negligible and the only result of any interest was the fact that four rocks contained >150 ppm As, with a maximum of 948 ppm As from a tiny zone of pyritic fractures in the axis of a small fold in Supply River Sandstone (sample 661260). The fault-hosted quartz-pyrite veins in the creek coming south off Bald Tier (mentioned in 5.4 above) assayed 373 ppm As.

A fire in the Analabs laboratory partly destroyed the packets containing the stream sediment and limonite seep samples before assaying. The material was rescued and analysed, although there was some cross-contamination between samples and not all sample numbers could be identified (no seep numbers were legible). Gold was determined by fire assay with a 1 ppb detection limit. Results were insignificant: maximum gold values were 16 ppb from two of the limonite seeps and 10 ppb from sediment sample 661119. The limonite seeps all had slightly elevated Zn ranging from 103 to 642 ppm and one had an As value of 156 ppm.

6.2 LITHOGEOCHEMISTRY

A total of 49 rocks representing typical suites of the various units were taken for lithogeochemical analysis. Assays values for Ti, Zr, V, Nb, Rb, Y, Ba, Sr, Cr, Sn, W and P were determined by XRF and values for Ni, Co, Be, Sc, Th, Ta, Hf and B by ICP-AES. Results are listed in Table 1 and Appendix 1. Plots of Nb/Y vs Ti/Zr, Cr vs Ti/Zr, V vs Ba and Cr vs P, for the Ordovician sequences at both Mt Careless and Beaconsfield Mine, are shown in Figures 11-14.

The aim of the sampling was to assist local rock correlations and to compare the Mt Careless Ordovician sequence with the Cabbage Tree Formation at Beaconsfield. In both respects the lithogeochemistry has proved very effective.

Significant lithogeochemical results at Mt Careless include:

1. On the plots the rocks fall into two overlapping groupings considered to reflect differences in provenance. One group is made up of the Proterozoic, Supply River Sandstone and Little Supply Siltstone; the second comprises the conglomerate and sandstone members of the Frankford Siliciclastics.
2. Tight coincident fields for the Proterozoic and Supply River Sandstone indicate these units share a common provenance.

3. Despite the wide geographic spread of the samples, the restricted fields of the Supply River Sandstone confirm the uniformity of this unit.
4. The quartz-mica sandstone on Clarkes Hill lies outside the field of the Supply River Sandstone on all plots and apparently is not a facies equivalent of this unit. The sandstone shows more affinity with the Little Supply Siltstone, apart from having P values which are distinctively lower.
5. Quartz-mica sandstone within the Frankford Siliciclastics in Brambles Quarry (sample 661384) has a Supply River Sandstone signature, most clearly seen on the Cr vs P plot. This important link between these units hints at an interfingering contact relationship.
6. Conglomerate of the Frankford Siliciclastics has notably higher Cr content than any other rock type, averaging 504 ppm (detrital chromite was seen in conglomerate on Clarkes Hill). The Ti trend is the opposite that of Cr, increasing with decreasing grainsize. This suggests that unlike Cr the Ti is in mineral species other than detrital heavy minerals.
7. The V vs Ba plot also shows a remarkably linear progression of increasing V and Ba with decreasing grainsize.

The main features of the comparison between the Mt Careless Ordovician data and that from the Cabbage Tree Formation at Beaconsfield are:

1. Correlation between the Beaconsfield and Mt Careless rocks is strongest on the Nb/Y vs Ti/Zr plot. Sandstones in the Lower Transition unit correlate with the Supply River Sandstone and the Little Supply Siltstone correlates well with the Upper Transition. While the majority of samples show remarkably good correlation along these lines the fields overlap, apparently reflecting the fact that there is more sandstone in the Upper Transition than in the Little Supply Siltstone.
2. These correlations are also seen on the Cr vs Ti/Zr and V vs Ba plots, particularly on the former. The more-sandy nature of the Upper Transition compared to the Mt Careless sequence is evident in the way the Upper Transition field covers parts of both the Supply River Sandstone and Little Supply Siltstone, and also by its large overlap (on all plots) with the Lower Transition sandstones field.
3. The Cabbage Tree Formation has a higher Cr content, particularly in the basal units. Overall, it shows the same decrease in Cr with decreasing grainsize as seen at Mt Careless:

	<u>Average Chrome Content</u> (ppm)	
	<u>Beaconsfield</u>	<u>Mt Careless</u>
Cabbage Tree Cong	884	Frankford Silic cong 504
Lower Transition cong	632	Frankford Silic sst 182
Lower Transition sst	257	Supply River Sst 198
Upper Transition sst/slt	138	Little Supply Slt 135

4. The ultramafic component of the provenance of the basal Ordovician in both areas, evident in the above figures, is not reflected in elements such as Ni, Co or Sc, which have very low values. This suggests that only Cr was indestructible enough to survive the erosion and transport.

5. The Cabbage Tree Formation also has increasing Ti, V and Ba with decreasing grainsize, but the trends are not as marked as at Mt Careless.
6. On all plots the Cabbage Tree Conglomerate has a remarkably small tight field which generally lies centrally within the wider fields of the hematized conglomerates of the Frankford Siliciclastics.
7. The fossiliferous quartz-mica sandstone on Clarkes Hill correlates better with the Upper Transition than the Lower Transition.

Legend for Lithochemical Plots; Figures 11 – 14, pages 25 – 28:

Mt Careless

- LSS* - *Little Supply Siltstone*
SRS - *Supply River Sandstone*
CHS - *Clarkes Hill Sandstone*
FSS - *Frankford Siliciclastics (sandstone member)*
FSC - *Frankford Siliciclastics (conglomerate member)*
?CS - *Cambrian siltstone*
PRO - *Proterozoic*

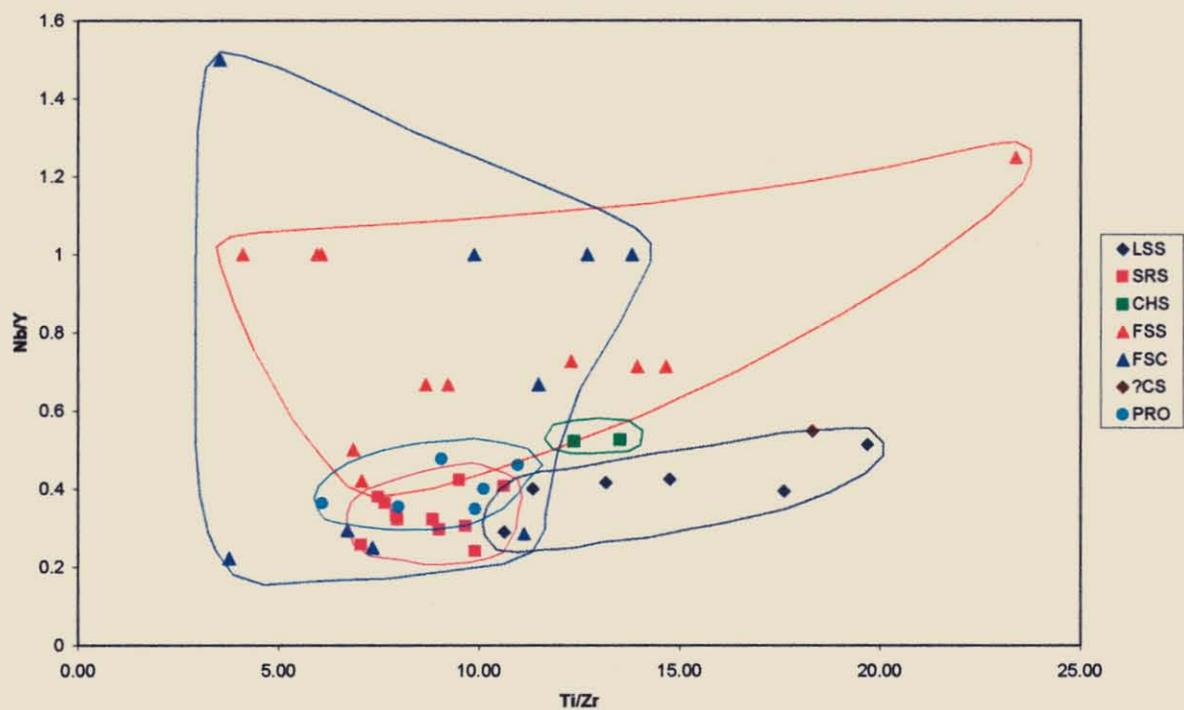
Beaconsfield Mine

- UTS* - *Upper Transition sandstone*
LTS - *Lower Transition sandstone*
LTC - *Lower Transition conglomerate*
CTC - *Cabbage Tree Conglomerate*

TABLE 1: MT CARELESS LITHOGEOCHEMISTRY

SUMMARY: AVERAGES		Ti	Zr	Ti/Zr	V	Nb	Rb	Y	Nb/Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B
ORDOVICIAN LIMESTONE		920	92	10.2	14	3	18	14	0.21	73	186	20	<3	<10	320	11	6	<2	2	<10	<20	<20	32
LITTLE SUPPLY SILTSTONE		4249	296	14.5	79	15	118	37	0.41	275	8	135	5	<10	220	28	10	2	10	12	<20	<20	171
SUPPLY RIVER SANDSTONE		2641	311	8.5	43	9	40	28	0.33	84	7	198	4	<10	264	13	6	<2	6	<10	<20	<20	115
FS - Sandstone Member		1091	124	10.2	17	5	14	7	0.79	40	14	182	3	<10	45	<10	<5	<2	<2	<10	<20	<20	87
FS - Conglomerate Member		601	81	8.9	12	3	8	6	0.69	28	15	504	<3	<10	40	<10	<5	<2	<2	<10	<20	<20	78
CLARKES HILL SANDSTONE		3017	235	13.0	61	11	81	21	0.53	191	7	112	5	<10	48	13	<5	<2	8	6	<20	<20	140
?CAMBRIAN		4539	237	19.2	91	17	160	31	0.55	396	8	96	3	<10	277	41	10	2	14	12	<20	<20	140
PROTEROZOIC		2067	235	9.0	46	10	72	25	0.41	294	25	89	3	<10	156	12	5	<2	5	<10	<20	<20	89
ORDOVICIAN LIMESTONE (2 samples)																							
Sample	Description	Ti	Zr	Ti/Zr	V	Nb	Rb	Y	Nb/Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B
661290	Sandy limestone	1204	125	9.6	23	4	24	15	0.27	80	197	26	<3	<10	517	13	9	<2	4	<10	<20	<20	40
661390	Grey limestone	636	59	10.8	5	<3	13	13	0.15	87	175	15	<3	<10	123	<10	<5	<2	<2	<10	<20	<20	<25
Average		920	92	10.2	14	3	18	14	0.21	73	186	20	<3	<10	320	11	6	<2	2	<10	<20	<20	32
LITTLE SUPPLY SILTSTONE (6 samples)																							
Sample	Description	Ti	Zr	Ti/Zr	V	Nb	Rb	Y	Nb/Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B
661262	Weak ox siltstone	3331	284	11.3	59	12	101	30	0.40	182	9	134	6	<10	200	26	13	2	8	10	<20	<20	220
661264	Mod ox siltstone	4064	309	13.2	69	15	106	36	0.42	206	7	110	3	<10	223	20	12	2	10	12	<20	<20	205
661337	Ox siltstone	3154	297	10.6	39	11	51	38	0.29	156	<5	228	6	<10	198	13	<5	<2	6	<10	<20	<20	100
661344	Ox siltstone	5074	258	19.7	108	18	159	35	0.51	340	11	163	5	<10	210	31	<5	4	14	14	<20	<20	225
661388	Mod ox siltstone	4785	272	17.6	97	17	159	43	0.40	404	8	84	6	<10	205	39	13	2	12	13	<20	<20	140
661389	Unox siltstone	5087	345	14.7	104	17	135	40	0.42	360	8	92	4	12	284	38	14	2	10	13	<20	<20	135
Average		4249	296	14.5	79	15	118	37	0.41	275	8	135	5	<10	220	28	10	2	10	12	<20	<20	171
SUPPLY RIVER SANDSTONE (11 samples)																							
Sample	Description	Ti	Zr	Ti/Zr	V	Nb	Rb	Y	Nb/Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B
661267	Qtz-mica sst	2689	338	8.0	47	9	33	28	0.32	79	<5	241	<3	<10	186	17	10	<2	6	<10	<20	<20	95
661271	Sl ox qtz-mica sst	2675	252	10.6	49	11	45	27	0.41	98	6	68	4	<10	289	15	6	<2	6	<10	<20	<20	105
661276	Qtz-mica sst	2464	249	9.9	48	7	42	29	0.24	82	<5	290	<3	<10	545	12	6	<2	6	<10	<20	<20	110
661277	Qtz-mica sst	3025	429	7.1	42	9	42	35	0.26	109	5	97	6	<10	439	18	7	<2	6	<10	<20	<20	110
661278	Sl ox qtz-mica sst	2424	317	7.6	32	8	31	22	0.36	62	<5	408	4	<10	97	11	<5	<2	4	<10	<20	<20	105
661282	Sl ox qtz-mica sst	2877	303	9.5	59	11	54	26	0.42	110	9	88	6	<10	110	12	<5	<2	6	<10	<20	<20	120
661288	Sl ox qtz-mica sst	2548	283	9.0	41	8	39	27	0.30	85	11	94	3	<10	309	11	<5	<2	6	<10	<20	<20	110
661289	Ox qtz-mica sst	2782	372	7.5	30	11	29	29	0.38	61	<5	195	3	<10	235	13	<5	<2	6	<10	<20	<20	125
661302	Sl ox qtzose sst	2104	218	9.7	33	7	28	23	0.30	67	7	66	5	<10	204	<10	<5	<2	2	<10	<20	<20	135
661304	Cb-altered sst	2397	271	8.8	41	10	41	31	0.32	84	11	309	5	<10	274	14	8	<2	6	<10	<20	<20	115
661307	Qtz-mica sst	3068	387	7.9	54	12	53	36	0.33	92	8	320	3	<10	219	14	<5	<2	8	<10	<20	<20	140
Average		2641	311	8.5	43	9	40	28	0.33	84	7	198	4	<10	264	13	6	<2	6	<10	<20	<20	115
FRANKFORD SILICICLASTICS - Sandstone Member (11 samples)																							
Sample	Description	Ti	Zr	Ti/Zr	V	Nb	Rb	Y	Nb/Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B
661299	Pale grey qtz sst	921	100	9.2	6	4	13	6	0.67	37	7	101	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	105
661305	Sl ox white qtz sst	355	41	8.7	7	<3	7	3	0.67	20	<5	34	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	90
661350	Grey qtz sst	658	96	6.9	12	<3	13	4	0.5	27	8	316	3	<10	<30	<10	<5	<2	<2	<10	<20	<20	95
661360	Red hem qtz sst	920	66	13.9	6	5	<5	7	0.71	11	<5	368	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	115
661365	Pale grey qtz sst	1659	135	12.3	30	8	23	11	0.73	66	51	52	6	<10	<30	<10	<5	<2	4	<10	<20	<20	120
661383	Dark grey qtz sst	127	31	4.1	43	<3	<5	<3	1.00	15	<5	70	6	<10	41	<10	<5	<2	<2	<10	<20	<20	50
661384	Grey qtzose sst	2605	389	7.1	40	8	31	19	0.42	94	10	78	4	<10	178	<10	<5	<2	4	<10	<20	<20	70
661385	Pink hem qtz sst	1252	207	6.0	5	5	<5	5	1.00	22	<5	52	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	70
661386	Sl sericitic qtz sst	1135	191	5.9	16	5	22	5	1.00	51	<5	146	3	<10	<30	<10	<5	<2	<2	<10	<20	<20	80
661396	Pink hem qtz sst	1143	78	14.7	15	5	23	7	0.71	62	27	393	5	<10	40	<10	<5	<2	<2	<10	<20	<20	70
661401	Pink hem qtz sst	1216	52	23.4	10	5	12	4	1.25	38	29	391	<3	<10	31	<10	<5	<2	<2	<10	<20	<20	90
Average		1091	124	10.2	17	5	14	7	0.79	40	14	182	3	<10	45	<10	<5	<2	<2	<10	<20	<20	87
FRANKFORD SILICICLASTICS - Conglomerate Member (9 samples)																							
Sample	Description	Ti	Zr	Ti/Zr	V	Nb	Rb	Y	Nb/Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B
661284	Dk grey qtz cong	503	51	9.9	20	<3	<5	<3	1.00	25	<5	722	4	<10	<30	<10	<5	<2	<2	<10	<20	<20	60
661314	V hem qtz cong	959	143	6.7	18	5	22	17	0.29	49	60	585	<3	<10	64	<10	<5	<2	2	<10	<20	<20	135
661349	Dk grey qtz cong	229	65	3.5	6	3	<5	<3	1.50	<10	<5	555	<3	<10	<30	17	<5	<2	2	<10	<20	<20	60
661356	Leached pink cong	552	40	13.8	<5	<3	<5	<3	1.00	<10	5	467	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	75
661357	Dk grey cong + py	706	188	3.8	15	<3	6	9	0.22	22	<5	525	<3	<10	42	18	8	<2	<2	<10	<20	<20	80
661358	Dk grey cong + py	685	54	12.7	10	4	6	4	1.00	19	<5	514	3	<10	43	<10	<5	<2	<2	<10	<20	<20	75
661359	Red hem qtz cong	562	49	11.5	10	4	7	6	0.67	29	23	85	3	<10	54	<10	<5	<2	<2	<10	<20	<20	90
661395	V hem qtz cong	655	59	11.1	11	<3	9	7	0.29	25	22	564	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	75</

Mt Careless Lithochemistry - Nb/Y vs Ti/Zr



Beaconsfield Mine Lithochemistry - Nb/Y vs Ti/Zr

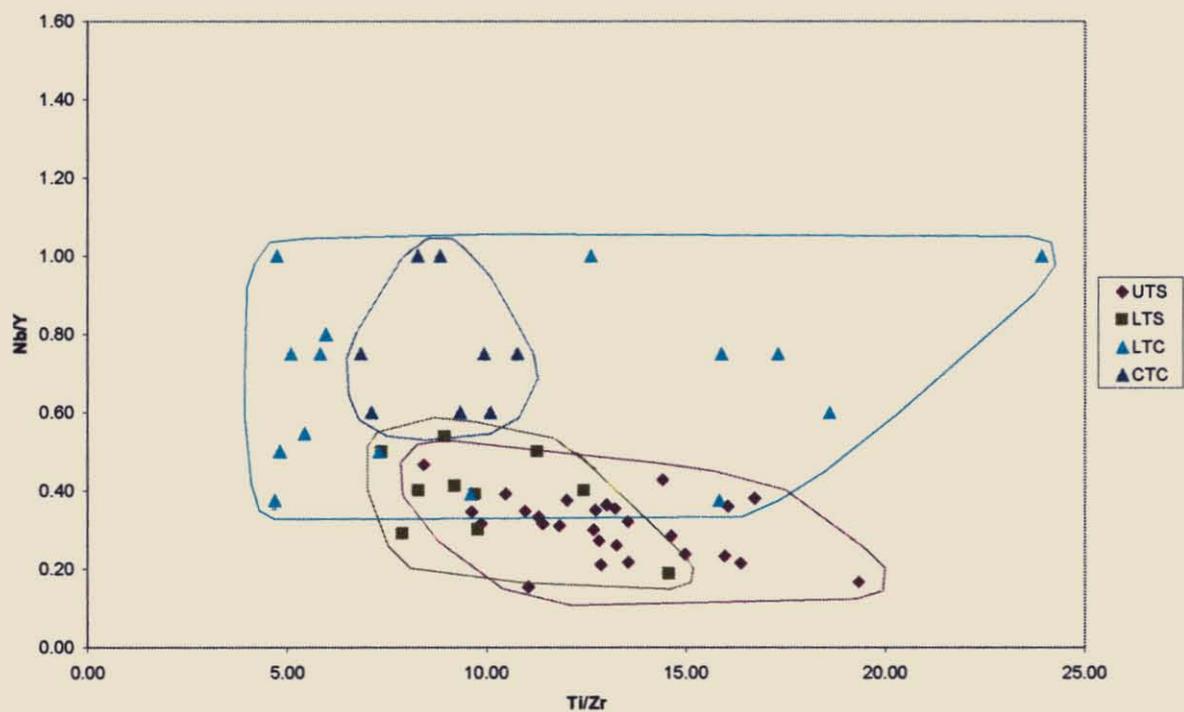
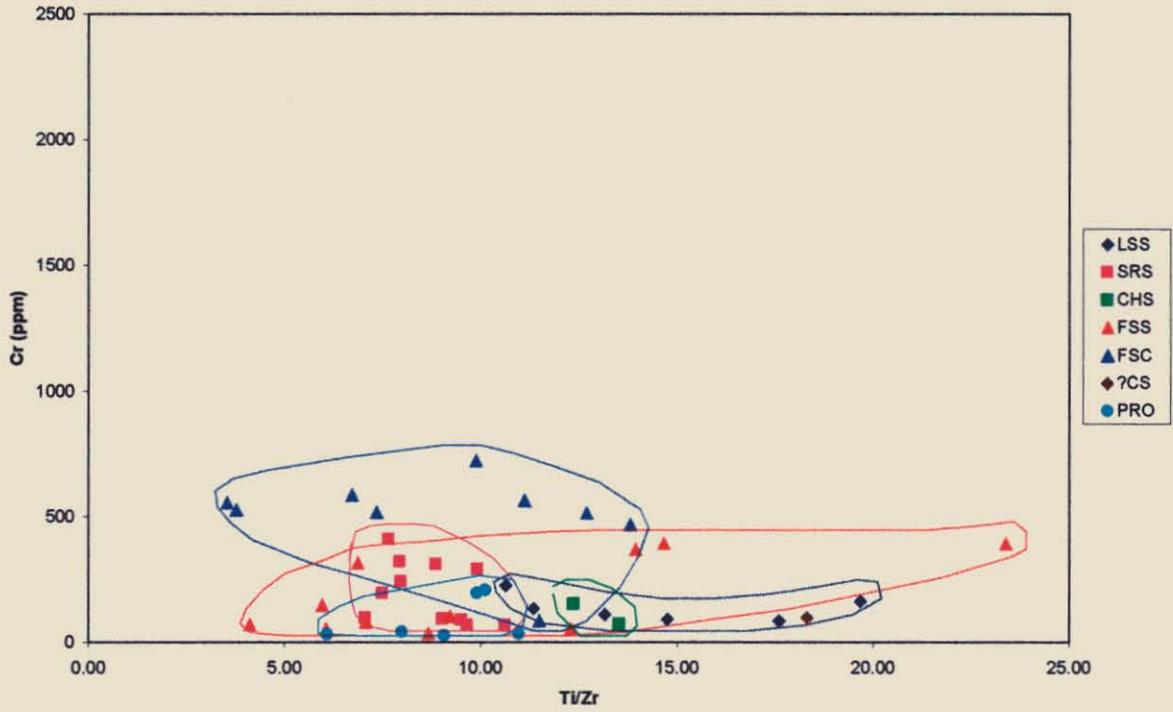


Figure 11 Lithochemistry: Nb/Y vs Ti/Zr



Beaconsfield Mine Lithochemistry - Cr vs Ti/Zr

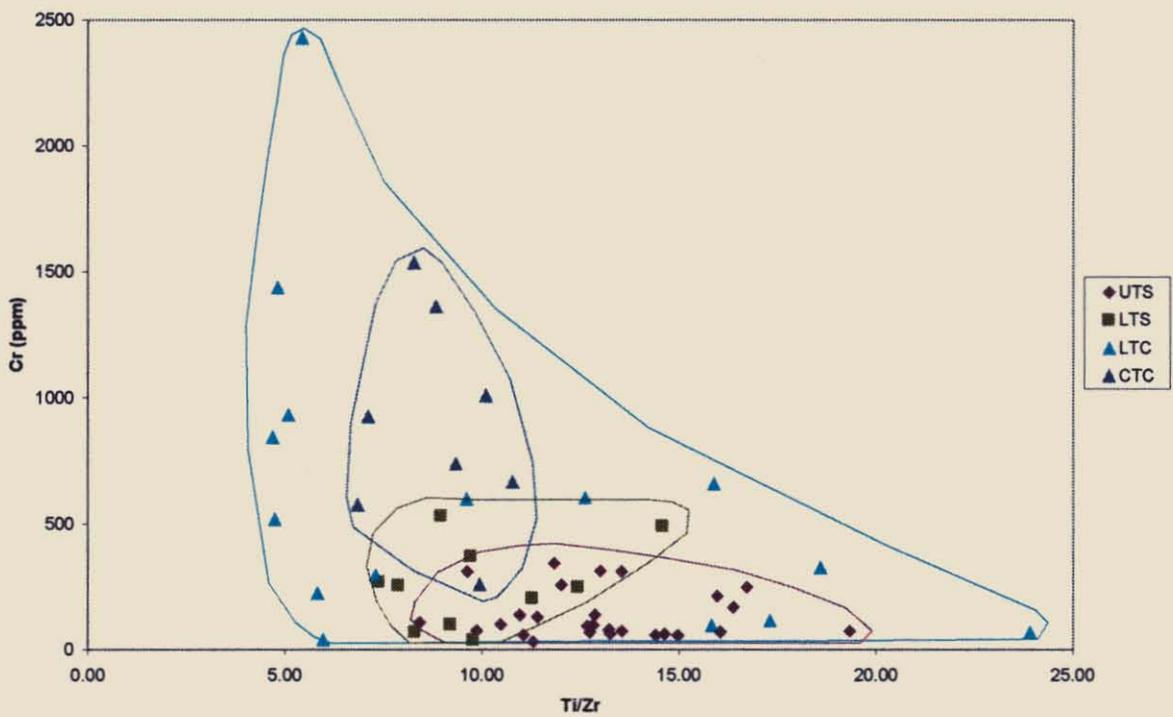
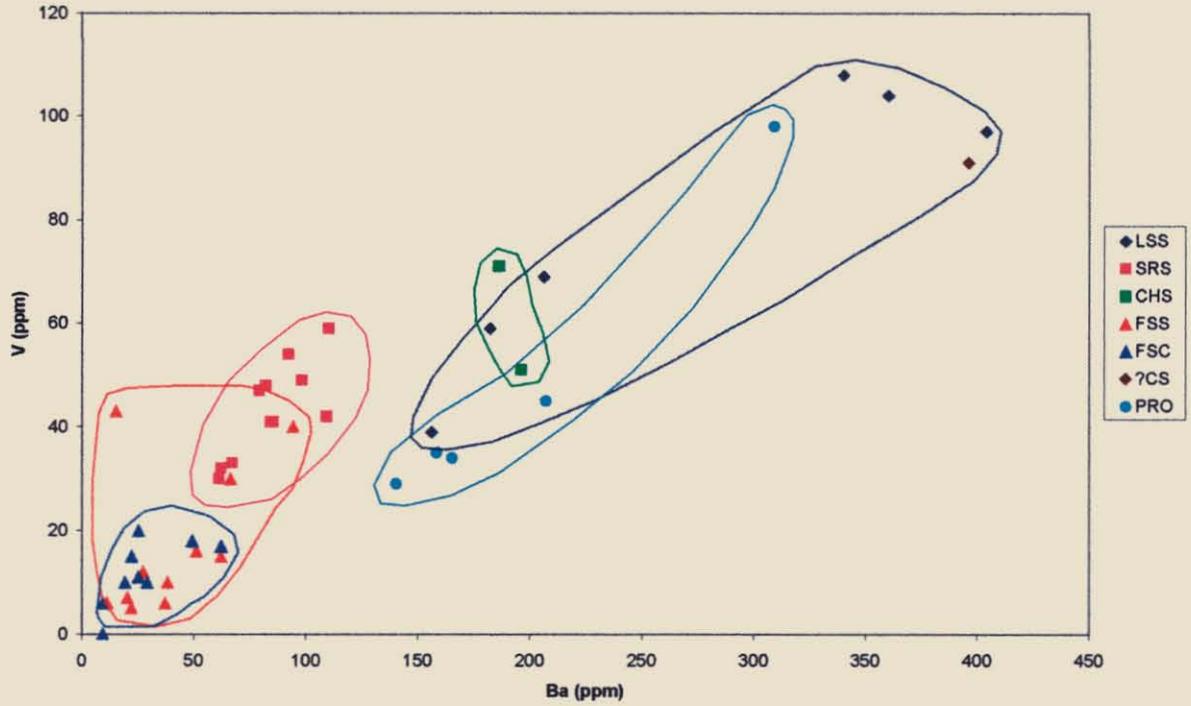


Figure 12 Lithochemistry: Cr vs Ti/Zr

Mt Careless Lithochemochemistry - V vs Ba



Beaconsfield Mine Lithochemochemistry - V vs Ba

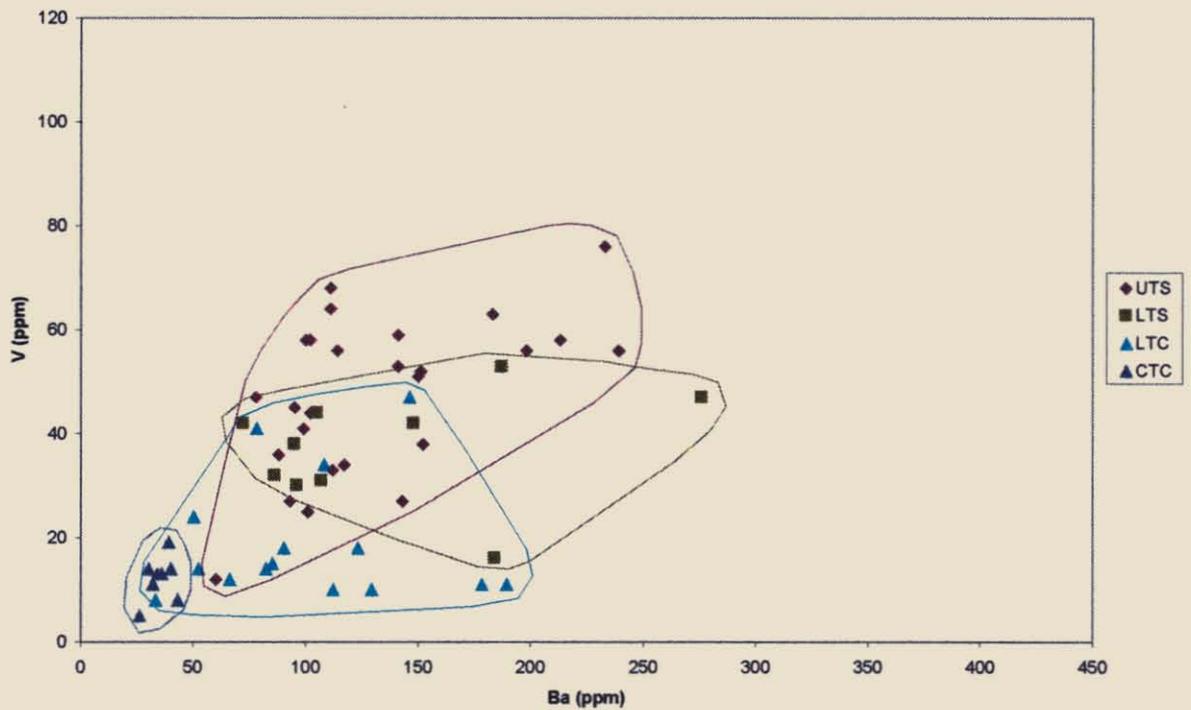


Figure 13 Lithochemochemistry: V vs Ba

Mt Careless Lithochemistry - Cr vs P

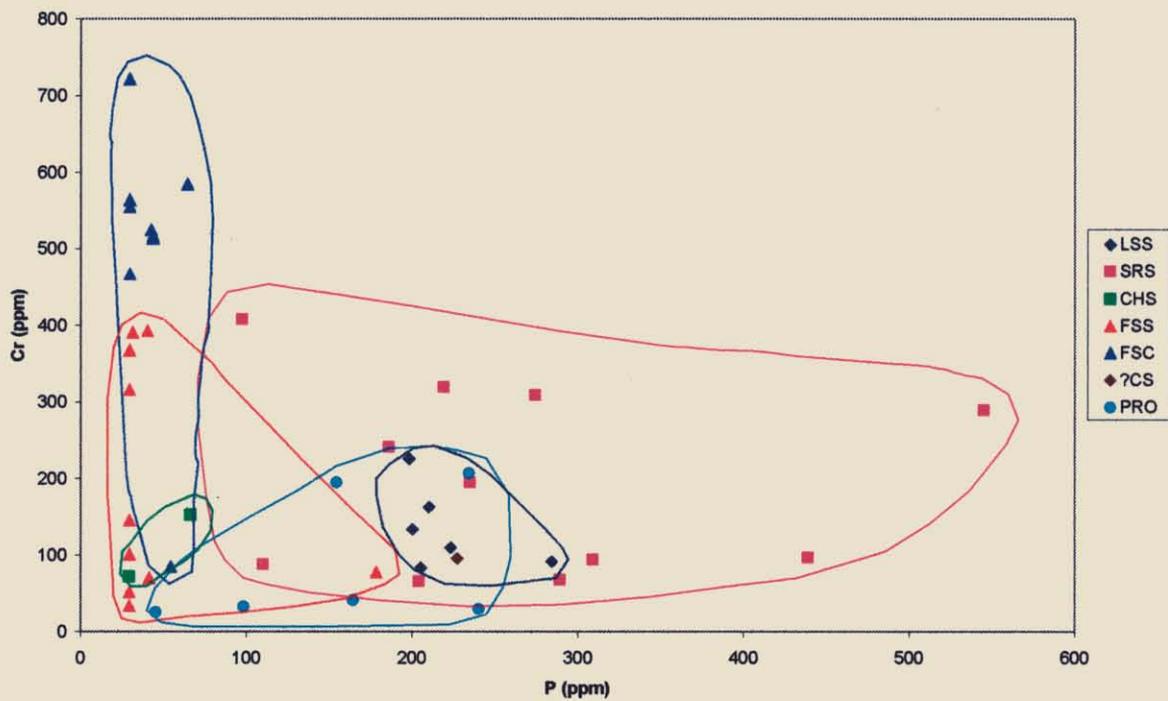


Figure 14 Lithochemistry: Cr vs P

7. AEROMAGNETIC INTERPRETATION

As part of the geological mapping programme on EL 31/96 the 1988 aeromagnetics were re-imaged by geophysicists Bob Richardson of Mineral Resources Tasmania and Bob White of Tooronga Resources in Sydney. White's images emphasized structure at depth, whilst Richardson's highlighted shallow features in order to decrease the overwhelming effect of the buried ultramafic body just north of the EL.

Selected images from each are shown in Figures 15 & 16. The aeromagnetics and 1994 1:25000 scale colour aerial photographs were used to compile a structural interpretation of the EL which is incorporated into Figure 2 and Section 5.3.

Numerous large faults are evident on the magnetics. Some coincide with those mapped on the ground and/or visible on the air photos. One series of major cross-cutting faults, clearly defined by the magnetics but not noted in the field, appears of particular significance. These have the Tasmania Reef's NE trend and in at least one instance mark a dextral offset (like the Tasmania Reef structure) on shallowly-buried probable Ordovician rocks in the eastern part of the EL. With these similarities the structures are presumed to be of similar age to that hosting the Tasmania Reef.

This set of NE-trending structures, comprising at least two major parallel faults clearly controls the middle reaches of the Little Supply River. The line of old (gold?) workings in the Little Supply Siltstone lies just to the south and sub-parallel to the faults (Figure 2). No discernible offsets occur where the structures cross the Bald Tier Fault.

East of the Bald Tier Fault the NE-trending faults are clearly expressed on the magnetics especially where they intersect and change the morphology of two prominent magnetic highs. These are considered to be ridges of Ordovician sediments shallowly buried beneath the Permian as the Clarkes Hill exposure of Cabbage Tree Formation look-alikes occurs on the eastern ridge. Other rocks or factors are apparently also present as the Ordovician does not normally have such a marked magnetic signature. The NE-trending faults cause offsets and changes in strike and width where they intersect these ridges. A major dextral offset occurs where the northern-most of the structures intersects the western ridge but the other morphological changes are more suggestive of faults with substantial throws.

8. DISCUSSION

The lack of gold from the sampling at Mt Careless over the past two seasons is a major disappointment requiring a reassessment of whether the rocks are prospective at all and whether exploration could be better directed on the EL. Trying to answer these questions has been the principal task addressed during compilation of this report. Finding gold, almost any gold, at Mt Careless is now crucial for the future of the project.

Given the dissection of the Ordovician sequence in the upper Supply River basin, any gold mineralization at surface must have shed into a sampled catchment. Although BLEG sediment sampling does not enjoy a good reputation for reliability under Tasmanian conditions, the 1997 sample distribution was very dense and has been checked (in a limited way) by the -80 mesh sediment sampling done this year. It has also been complimented by extensive rock sampling.

In the dissected and heavily sampled areas of the upper Supply River basin west of the Bald Tier Fault, any outcropping mineralized zone of significant extent should have been detected during work to date. If it is accepted that gold mineralization does exist on the EL, there are three main possibilities:

- The exposed gold mineralization is very discrete and of limited extent.
- It occurs in poorly sampled areas, eg: those with extensive younger cover in the eastern part of the EL.
- It is entirely buried with no outcrop expression.

The 3 km long line of scattered old workings trending NE on the south side of the Little Supply River and those on the slope west of the Brambles Quarry ("Goldmine Hill", where the 3.77 ppb Au BLEG sample was collected) warrant limited systematic sampling of rocks and soils with the initial aim of just proving that gold is present.

The lithologies and upward-fining nature of the Mt Careless Ordovician sequence broadly mirror the Cabbage Tree Formation at Beaconsfield from basal quartz conglomerate through quartzose sandstones to quartz-mica siltstone at the top. The most obvious difference is the apparent lack of carbonates in the upper parts of the Mt Careless sequence, although this may be *partly* explained by the preferential weathering and non-exposure of carbonates.

There is some evidence the poorly-exposed uppermost unit at Mt Careless, the Little Supply Siltstone, may be heavily bioturbated and in the Cabbage Tree Formation intersected in drillcore at Beaconsfield Mine it is notable that bioturbation occurs in the vicinity of carbonate-rich sections of the stratigraphy. The siltstone appears identical to the Bulls Road Siltstone at Winkleigh which contains fossils directly correlatable with the basal part of the Upper Transition unit at Beaconsfield. This upper section of the Mt Careless sequence is finer grained than the equivalent part of the Cabbage Tree Formation.

One of the most marked but superficial differences between the Ordovician at Beaconsfield and Mt Careless is the widespread hematization of the sequence west of the Bald Tier Fault. There is clear evidence at least some of these rocks were dark and carbonaceous, like the Lower Transition unit at Beaconsfield, prior to the overprinting hematization. East of the Bald Tier Fault at Mt Careless the basal part of

the unhematized sequence is dark and carbonaceous and looks like typical Cabbage Tree Formation.

This situation is confirmed by the lithochemistry. Overall, the Mt Careless units can be correlated with the Cabbage Tree Formation, with the Supply River Sandstone equivalent to the Lower Transition and the Little Supply Siltstone equivalent to the Upper Transition. But the geochemical correlations are not tight and there are some differences: for example, the lower Cr content of the Mt Careless rocks. Again, these differences are not considered lithologically significant.

However, two contrasts between the sequences may be important in terms of gold mineralization:

1. The siliceousness and highly fractured/jointed brittle nature of the Cabbage Tree Formation at Beaconsfield, especially the Lower Transition unit, is very marked. The rocks are almost vitreous in character and in places the fracturing approaches shattering. Although many of the Mt Careless rocks (especially the basal Frankford Siliciclastics unit) are very siliceous and jointed, overall the Beaconsfield rocks are more so.
2. The presence of pyritic carbonaceous and graphitic material is ubiquitous in the Lower Transition unit at Beaconsfield and a notable component within and adjacent to the Tasmania Reef regardless of the wallrock type. Demonstrably, this material is an original rock component and not brought in by the ore fluid but it may have been important in getting gold to deposit from it. If, as seems likely, the hematization of the rocks at Mt Careless took place prior to the emplacement of the gold mineralization in the mid-Devonian, these rocks may have been rendered unsuitable for gold deposition. This would not apply to the rocks east of the Bald Tier Fault which remained unhematized and carbonaceous.

Structurally, this eastern block also looks more prospective on two counts:

1. The large NE-trending faults of presumed Tasmania Reef age, appear to intersect and dextrally offset shallowly buried Ordovician sediments here.
2. At the time of the Devonian gold mineralization this eastern block was underlain by a huge east-dipping thrust: the Bald Tier Fault. By analogy with Beaconsfield, any ore fluid coming up the thrust would have moved into suitable sites (the NE cross-faults) in this overlying eastern block.

9. CONCLUSIONS

1. The presence of gold has yet to be confirmed in the Mt Careless area. It is crucial for the future of the exploration programme that gold be located on the EL in the next phase of work.
2. To this end, limited systematic rock and soil sampling is warranted around the small old workings along the 3 km NE trend south of the Little Supply River and west of Brambles Quarry.
3. Although there are differences, the Mt Careless Ordovician sequence can be correlated stratigraphically, lithologically and lithogeochemically with the Cabbage Tree Formation which hosts the Beaconsfield gold deposit.
4. The Bald Tier Fault is a very large steeply east-dipping Devonian thrust reactivated by post-Permian normal fault movements. Ordovician rocks in the (upper) block east of this structure are considered more prospective than those to the west.
5. A series of major NE cross-faults have formed prospective structural sites where they intersect and offset shallowly-buried Ordovician rocks east of the Bald Tier Fault.
6. In the dissected and heavily sampled areas of the upper Supply River basin west of the Bald Tier Fault any outcropping significant gold mineralized zone should have been detected by the work done to date.

10. RECOMMENDATIONS

1. Rock sampling and mechanical soil auger traverses be carried out in the vicinity of the old workings scattered over 3 km along the southern side of the Little Supply River and on the slope immediately west of Brambles Quarry off the Biralee Road.

Both sites are forested, a mixture of Crown Land and Private Property and have reasonable vehicular access.

2. The NE cross-faults east of the Bald Tier Fault should be tested for gold by detailed magnetics (preferably helicopter-borne) to accurately locate them, followed by soil sampling in non-covered areas and RC drilling.

The prospective zones are shown in Figure 2. They are mainly farmed or forested Private Property, with good vehicle access.

11. EXPENDITURE

11.1 1998 EXPENDITURE

Expenditure on EL 31/96 (Mt Careless) for the year to 8 November 1998 was **\$36,944**. This brings the total spent on the EL since its granting in November 1996 to **\$76,422** against an expenditure commitment during the first two years of the Licence of \$30,750.

Details of the 1998 expenditure are as follows:

Category

Geology	\$29,337
Geochemistry	\$ 928
Administration	\$ 3,742
Other (Drafting, Survey, etc.)	\$ 2,937

Total **\$36,994**

11.2 PROPOSED 1999 EXPENDITURE (P.B. Hills)

Allstate Explorations expenditure to date on the Mt Careless licence of \$76,422 considerably exceeds the statutory commitment of \$30,750 during the initial two years. The figure also exceeds the cumulative expenditure commitment of \$71,750 required to have been spent by November 1999.

A programme of work has been recommended for 1999 but this is yet to be either costed or approved. Baseline geological information gathered during 1998 will form part of an expanding database to be integrated with work currently in progress on contiguous exploration licences by Beaconsfield Mine Joint Venture and the Joint Venture Partners individually. Geological knowledge of the Mt Careless area is continuing to expand through the Honours research project of David Atchison due later this year. A decision on expenditure levels at Mt Careless for 1999 will await the findings of Atchison's thesis and will be made in the new year.

12. REFERENCES

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**EL 31/96 MT CARELESS
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APPENDIX 1

Rock Sample Ledger

APPENDIX 1 : ROCK SAMPLE LEDGER, MT CARELESS EL31/96

Sample Number	N	E	Location	Type	Description	VALUES IN PPM																												%
						Au	Au(R)	As	Cu	Pb	Zn	Ag	Ti	Zr	V	Nb	Rb	Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B	S	
661248	5425913	482353	Upper Supply R	Outcrop	Grey sandy qtz-mica phyllite								2258	283	98	11	76	31	309	28	41	5	<10	164	<10	<5	<2	6	<10	<20	<20	80		
661249	5425927	482480	Upper Supply R	Outcrop	Qtz-Limonite veins in altered black shale	<0.01	-	2	14	<3	13	<1																					<0.01	
661250	5425945	482476	Upper Supply R	Outcrop	Pyritic black siltst	<0.01	-	<1	9	<3	22	<1	2008	203	35	8	69	23	158	30	195	<3	<10	154	15	<5	<2	4	<10	<20	<20	110	<0.01	
661258	5424055	483599	Supply R	Outcrop	Qtz - chlorite veins	<0.01	<0.01	<1	3	<3	5	<1																				<0.01		
661259	5424086	483484	Supply R	Outcrop	Qtz vein	<0.01	-	1	7	<3	8	<1																				<0.01		
661260	5424270	483262	Supply R	Outcrop	Py in fold axis in qtzose sst	<0.01	-	948	5	6	18	<1																				0.16		
661261	5424356	483224	Supply R	Outcrop	15cm qtz vein, orthogonal to So	<0.00	0.01	<1	2	<3	2	<1																				<0.01		
661262	5421504	483120	Lt Supply R	Outcrop	Cleaved siltstone, wk limonite bxwks	<0.01	<0.01	7	7	<3	23	<1	3331	294	59	12	101	30	182	9	134	6	<10	200	26	13	2	8	10	<20	<20	220	<0.01	
661263	5421535	483261	Lt Supply R	Outcrop	20cm qtz vein, strong hematite bxwks	<0.01	-	10	10	4	14	<1																				<0.01		
661264	5421798	483594	Lt Supply R	Outcrop	Purplish-grey micaceous shale & siltst	<0.01	-	2	6	<3	20	<1	4064	309	69	15	106	36	206	7	110	3	<10	223	20	12	2	10	12	<20	<20	205	<0.01	
661265	5422208	483930	Lt Supply R	Float	Yellow-red ferruginous capping	<0.01	-	198	67	8	28	1																				0.03		
661266	5425772	483177	Bald Tier	Outcrop	Hematitic band in qtzose sst	<0.01	-	10	<2	<3	39	<1																			<0.01			
661267	5425772	483177	Bald Tier Ck	Outcrop	Sl hematitic qtz-mica sst								2689	338	47	9	33	28	79	<5	241	<3	<10	186	17	10	<2	6	<10	<20	<20	95		
661268	5425755	483155	Bald Tier Ck	Outcrop	1m limonitic qtz saddle reef	<0.01	<0.01	56	5	<3	34	<1																			<0.01			
661269	5425658	483186	Bald Tier Ck	Outcrop	Limonitic qtz saddle reef	<0.01	-	25	8	<3	29	<1																			<0.01			
661270	5425619	483272	Bald Tier Ck	Outcrop	25cm limonitic qtz vein	<0.01	-	2	7	<3	8	<1																			<0.01			
661271	5425619	483272	Bald Tier Ck	Outcrop	Fine qtz-mica sst with limonite stains								2675	252	49	11	45	27	98	6	68	4	<10	289	15	6	<2	6	<10	<20	<20	105		
661272	5425496	483317	Bald Tier Ck	Outcrop	Purplish qtz-mica sst																													
661273	5425405	483277	Bald Tier Ck	Outcrop	Chips of qtz veins over 1.5m width	<0.01	-	4	3	<3	8	<1																			<0.01			
661274	5425193	483224	Bald Tier Ck	Outcrop	5m chip: qtz-py veins in fold axis	<0.01	-	373	32	<3	12	<1																			0.35			
661275	5425165	483223	Bald Tier Ck	Outcrop	10m chip: limonitic qtz-chl veins	<0.01	-	62	8	<3	<2	<1																			0.01			
661276	5424356	483224	Supply R	Outcrop	Purplish qtz-mica sst								2464	249	48	7	42	29	82	<5	290	<3	<10	545	12	6	<2	6	<10	<20	<20	110		
661277	5424145	483397	Supply R	Outcrop	Fl gr qtzose sst								3025	429	42	9	42	35	109	5	97	6	<10	439	18	7	<2	6	<10	<20	<20	110		
661278	5425348	483287	Bald Tier Ck	Outcrop	Dk purple hematitic qtz-mica sst								2424	317	32	8	31	22	62	<5	408	4	<10	97	11	<5	<2	4	<10	<20	<20	105		
661279	5423656	481734	Frankford Quar	Outcrop	Qtz-py veins over 0.3m in fault	<0.01	<0.01	5	3	<3	<2	<1																			1.87			
661280	5423638	481760	Frankford Quar	Outcrop	Qtz-py veins over 0.5m in fault	<0.01	-	21	2	<3	<2	<1																			1.40			
661281	5424111	482676	Frankford Quar	Dump	15cm limonitic qtz vein	<0.01	<0.01	8	4	<3	20	<1																		<0.01				
661282	5424162	482666	Frankford Quar	Float	Fl gr qtz-mica sst								2877	303	59	11	54	26	110	9	88	6	<10	110	12	<5	<2	6	<10	<20	<20	120		
661283	5424179	482678	Frankford Quar	Outcrop	Silicified qtz sst with qtz veins	<0.01	-	2	4	<3	<2	<1																			<0.01			
661284	5424196	482689	Frankford Quar	Outcrop	Sl carbonaceous qtz conglomerate	<0.01	-	<1	5	<3	<2	<1	503	51	20	<3	<5	<3	25	<5	722	4	<10	<30	<10	<5	<2	<2	<10	<20	<20	60	<0.01	
661285	5424239	482740	Frankford Quar	Outcrop	Limonitic qtz veins	<0.01	-	62	4	<3	36	<1																			0.01			
661286	5424567	483185	Supply R	Outcrop	Feox-cemented gravel	<0.01	-	20	6	<3	19	<1																			<0.01			
661287	5424587	483179	Supply R	Outcrop	Highly limonitic qtzose sst	<0.01	-	1	4	<3	32	<1																			<0.01			
661288	5422915	482765	SE of Frank Quar	Outcrop	Purplish-brown qtz-mica sst								2548	283	41	8	39	27	85	11	94	3	<10	309	11	<5	<2	6	<10	<20	<20	110		
661289	5422816	483007	SE of Frank Quar	Float	Ox finely bedded qtzose sst								2782	372	30	11	29	29	61	<5	195	3	<10	235	13	<5	<2	6	<10	<20	<20	125		
661290	5425846	482632	Upper Supply R	Outcrop	Grey-black sandy limestone								1204	125	23	4	24	15	80	197	26	<3	<10	517	13	9	<2	4	<10	<20	<20	40		
661291	5425635	481443	Upper Supply R	Outcrop	Limonitic qtz-mica phyllite	<0.01	-	3	6	<3	23	<1																			<0.01			
661292	5425664	481571	Upper Supply R	Outcrop	2cm qtz vein in shaley phyllite	<0.01	-	<1	4	<3	6	<1																			<0.01			
661294	5425798	481715	Upper Supply R	Outcrop	Dk grey silty qtz-mica phyllite								1961	194	34	10	83	25	165	31	207	4	<10	234	<10	<5	<2	6	<10	<20	<20	70		
661295	5425925	481930	Upper Supply R	Outcrop	Sandy qtz-mica phyllite								2333	213	45	12	83	26	207	17	33	4	<10	98	15	6	<2	6	<10	<20	<20	75		
661296	5425968	482146	Upper Supply R	Outcrop	Limonitic qtz veins in black phyllite	<0.01	<0.01	1	19	<3	19	<1																			0.01			
661297	5425950	482158	Upper Supply R	Outcrop	1.5m qtz > py vein in fault	<0.01	-	<1	4	<3	8	<1																			<0.01			
661298	5425968	482146	Upper Supply R	Outcrop	Folded black shale																													
661299	5425591	482858	Upper Supply R	Outcrop	Grey silicified qtz sst, trace py	<0.01	-	<1	11	<3	3	<1	921	100	6	4	13	6	37	7	101	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	105	0.21	
661300	5425418	482947	Upper Supply R	Float	Qtz-flooded & veined qtz sst	<0.01	-	4	<2	<3	<2	<1																			<0.01			
661301	5425283	483008	Upper Supply R	Outcrop	Grey, fl gr qtz-mica sst & qtz veins	<0.01	-	<1	6	<3	<2	<1																			<0.01			
661302	5422820	483059	SE of Frank Quar	Outcrop	Finely bedded qtz sst	<0.01	<0.01	7	3	<3	10	<1	2104	218	33	7	28	23	67	7	66	5	<10	204	<10	<5	<2	2	<10	<20	<20	135	<0.01	
661304	5425099	483071	Upper Supply R	Outcrop	Purplish-grey qtz-mica sst								2397	271	41	10	41	31	84	11	309	5	<10	274	14	8	<2	6	<10	<20	<20	115		

Sample Number	N	E	Location	Type	Description	VALUES IN PPM																						%					
						Au	Au(R)	As	Cu	Pb	Zn	Ag	Ti	Zr	V	Nb	Rb	Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be		Sc	Th	Ta	Hf	B
661305	5425152	483203	Bald Tier Ck	Outcrop	Qtz-flooded qtz sst								355	41	7	<3	7	3	20	<5	34	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	90	
661306	5425134	483227	Bald Tier Ck	Outcrop	2m chip: Qtz veins to 0.5m in sst	<0.01	<0.01	21	15	<3	2	<1																					0.05
661307	5422784	483196	SE of Frank Quar	Outcrop	Purplish-brown qtz-mica sst								3068	387	54	12	53	36	92	8	320	3	<10	219	14	<5	<2	8	<10	<20	<20	140	
661308	5422342	483727	SE of Frank Quar	Outcrop	Grey qtz-mica siltstone	Reference Sample																											
661309	5422211	483909	SE of Frank Quar	Outcrop	40cm limonitic qtz veins in siltst	<0.01	-	9	24	<3	300	<1																				<0.01	
661310	5422924	485027	Wings Adit	Outcrop	2m chip: 4 qtz-limonite veins	<0.01	0.01	7	8	3	14	<1																				<0.01	
661311	5422909	485014	Wings Adit	Outcrop	5cm qtz vein	<0.01	-	3	13	<3	27	<1																				<0.01	
661312	5422906	485003	Wings Adit	Outcrop	1.5m chip: 3 qtz veins in trench	<0.01	<0.01	1	8	<3	8	<1																				<0.01	
661313	5425639	481519	Upper Supply R	Outcrop	Qtz-mica silty phyllite								1749	288	29	8	49	22	140	16	30	<3	<10	240	13	10	<2	4	<10	<20	<20	110	
661314	5425721	482758	Upper Supply R	Float	Pink hematized qtz conglomerate								959	143	18	5	22	17	49	60	585	<3	<10	64	<10	<5	<2	2	<10	<20	<20	135	
661315	5426011	482226	Upper Supply R	Outcrop	Grey qtz-mica silty phyllite	Reference Sample																											
661316	5423666	481699	Frankford Quarry	Outcrop	Hematized quartz conglomerate	Petrological Sample																											
661317	5427950	479885	Holwell Road	Outcrop	Qtz veins to 5cm in quartzite	<0.01	-	32	4	5	5	<1																			<0.01		
661318	5428060	479895	Holwell Road	Outcrop	Chips of limonitic qtz over 40m in shale	<0.01	-	13	6	12	11	<1																				<0.01	
661319	5428165	479915	Holwell Road	Outcrop	1m limonitic qtz vein	<0.01	-	15	20	14	7	<1																				<0.01	
661320	5428185	479920	Holwell Road	Outcrop	1m pod of limonitic vein qtz	<0.01	-	70	6	5	3	<1																				<0.01	
661321	5428205	479930	Holwell Road	Outcrop	10m chip : highly limonitic shale	<0.01	-	46	58	392	215	<1																				0.05	
661322	5428220	479980	Holwell Road	Outcrop	Black pyritic shale	<0.01	-	10	25	36	99	<1																				0.99	
661323	5428285	479960	Holwell Road	Outcrop	Black pyritic shale with qtz veinlets	<0.01	-	21	31	32	43	<1																				0.06	
661324	5424290	481092	Penningtons Adit	Outcrop	Weakly limonitic 15cm qtz veins	<0.01	-	23	15	<3	6	<1																				<0.01	
661325	5424290	481092	Penningtons Adit	Outcrop	8 cm limonitic qtz vein	<0.01	<0.01	8	8	<3	4	<1																				<0.01	
661326	5424290	481092	Penningtons Adit	Outcrop	10cm of gouge and qtz vein in fault	<0.01	-	114	32	10	10	<1																				<0.01	
661327	5424290	481092	Penningtons Adit	Outcrop	1.7m chip: Limonitic qtz veins in shale	<0.01	-	33	20	9	19	<1																				<0.01	
661328	5424290	481092	Penningtons Adit	Outcrop	1cm band of sooty qtz-py in shale	<0.01	-	177	45	39	55	<1																				3.06	
661329	5424290	481092	Penningtons Adit	Outcrop	Grey qtz-mica sandy phyllite								2091	231	37	10	71	21	783	28	26	<3	<10	45	<10	<5	<2	6	<10	<20	<20	90	
661330	5425557	486446	Paynes Adit	Outcrop	5cm bx qtz-limonite vein	<0.01	-	36	19	3	47	<1																				<0.01	
661331	5425557	486446	Paynes Adit	Outcrop	Irregular qtz veins over 0.3m	<0.01	-	31	13	<3	42	<1																				<0.01	
661332	5425557	486446	Paynes Adit	Outcrop	Qtz-limonite vein 35cm thick	<0.01	-	4	3	<3	5	<1																				<0.01	
661333	5425557	486446	Paynes Adit	Outcrop	Qtz-limonite vein 10cm thick	<0.01	-	9	12	<3	35	<1																				<0.01	
661334	5425557	486446	Paynes Adit	Outcrop	Shattered qtz vein 30cm thick	<0.01	-	19	6	<3	9	<1																				<0.01	
661335	5425557	486446	Paynes Adit	Outcrop	0.7m thick limonitic qtz vein	<0.01	-	<1	4	<3	2	<1																				<0.01	
661336	5425557	486446	Paynes Adit	Outcrop	Limonitic qtz vein 15cm thick	<0.01	<0.01	3	6	4	11	<1																				<0.01	
661337	5425557	486446	Paynes Adit	Outcrop	Highly limonitic qtz vein								3154	297	39	11	51	38	156	<5	226	6	<10	198	13	<5	<2	6	<10	<20	<20	100	
661338	5420954	483898	Shaft nr C'mtary	Dump	Pale pink qtz-mica-lithic siltst	<0.01	-	2	5	<3	9	<1																				<0.01	
661339	5425557	486446	Paynes Adit	Outcrop	Bx qtz-limonite vein, 5-25cm thick	<0.01	-	8	6	<3	14	<1																				<0.01	
661340	5421140	483705	Cemetery Gully	Float	Limonitic siltst with qtz-limonite vein	<0.01	-	11	7	4	8	<1																				<0.01	
661341	5421200	483741	Cemetery Gully	Float	Bleached limonitic qtz-mica siltst	<0.01	-	5	4	<3	<2	<1																				<0.01	
661342	5420998	483513	Cemetery Gully	Float	Qtz-limonite veinlets in sst	<0.01	<0.01	23	8	<3	20	<1																				<0.01	
661343	5425557	486446	Paynes Adit	Outcrop	15cm thick qtz-limonite vein	<0.01	-	12	7	<3	24	<1																				<0.01	
661344	5419540	484707	Montys Shaft	Dump	Sl limonitic cleaved qtz-mica siltst	<0.01	-	1	17	11	32	<1																				<0.01	
661345	5419513	484696	Montys Shaft	Float	Comb structured vein qtz	<0.01	-	<1	2	<3	<2	<1																				<0.01	
661346	5419519	484675	Montys Shaft	Outcrop	Limonitic qtz veins to 25cm in siltst	<0.01	-	1	2	<3	<2	<1																				<0.01	
661347	5419369	484969	Brambles Q ridge	Float	Weakly limonitic vein qtz to 20cm	<0.01	-	1	3	3	<2	<1																				<0.01	
661348	5418999	485292	Brambles Q ridge	Dump	Weak qtz veining in qtz sst (ox)	<0.01	-	<1	<2	<3	3	<1																				<0.01	
661349	5424154	487195	Clarkes Hill	Outcrop	Dk grey qtz conglomerate with Cr grains	<0.01	-	<1	2	3	<2	<1	229	65	6	3	<5	<3	<10	<5	555	<3	<10	<30	17	<5	<2	<2	<10	<20	<20	60	<0.01
661350	5424234	487171	Clarkes Hill	Outcrop	Grey qtz sst	<0.01	-	6	5	9	<2	<1	658	96	12	<3	13	4	27	8	316	3	<10	<30	<10	<5	<2	<2	<10	<20	<20	95	<0.01
661351	5424499	487116	Clarkes Hill	Outcrop	Grey qtz-mica sst								2635	195	51	10	77	19	196	6	72	4	<10	<30	13	<5	<2	6	<10	<20	<20	135	
661353	5424364	487050	Clarkes Hill	Outcrop	Fi gr qtz-feld-mica sst								3400	275	71	12	85	23	186	7	152	5	<10	66	13	<5	<2	10	12	<20	<20	145	
661354	5424097	487251	Clarkes Hill	Outcrop	Qtz veins trending 040 AMG	<0.01	<0.01	3	2	5	<2	<1																				<0.01	
661355	5425556	486446	Supply R	Outcrop	Cleaved siliceous siltst/shale								4539	237	91	17	160	31	396	8	96	3	<10	277	41	10	2	14	12	<20	<20	140	

Sample Number	N	E	Location	Type	Description	VALUES IN PPM																												% S
						Au	Au(R)	As	Cu	Pb	Zn	Ag	Tl	Zr	V	Nb	Rb	Y	Ba	Sr	Cr	Sn	W	P	Ni	Co	Be	Sc	Th	Ta	Hf	B		
661356	5418457	485426	Brambles Quarry	Outcrop	Pale red hematized qtz microcong								552	40	<5	<3	<5	<3	<10	5	467	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	75		
661357	5418457	485426	Brambles Quarry	Outcrop	Dk grey qtz microconglomerate with py								706	188	15	<3	6	9	22	<5	525	<3	<10	42	18	8	<2	<2	<10	<20	<20	80		
661358	5418457	485426	Brambles Quarry	Outcrop	Dk grey qtz microcong with Cr grains								685	54	10	4	6	4	19	<5	514	3	<10	43	<10	<5	<2	<2	<10	<20	<20	75		
661359	5423666	481699	Frankford Quarry	Outcrop	Pale red hematized qtz microcong								562	49	10	4	7	6	29	23	85	3	<10	54	<10	<5	<2	<2	<10	<20	<20	90		
661360	5427651	482386	Cahills L Quarry	Outcrop	Leached fractured pink qtz sst								920	66	6	5	<5	7	11	<5	368	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	115		
661361	5427651	482386	Cahills L Quarry	Outcrop	Cainozoic basal gravels	<0.01	-	<50	<2	<3	2	<1																			<0.01			
661362	5427742	482356	Cahills L Quarry	Outcrop	10cm qtz vein in qtz sst	<0.01	<0.01	<50	2	5	<2	<1																			<0.01			
661363	5427682	482331	Cahills L Quarry	Float	Purplish bioturbated qtz sst																													
661364	5427758	482222	Cahills L Quarry	Outcrop	Limonitic Permian siltst	<0.01	-	<50	<2	4	6	<1																			<0.01			
661365	5427426	482062	Cahills U Quarry	Outcrop	Grey qtz sst								1659	135	30	8	23	11	66	51	52	6	<10	<30	<10	<5	<2	4	<10	<20	<20	120		
661366	5427852	482253	Cahills L Quarry	Outcrop	Limonitic Permian pebbly sst	<0.01	-	<50	<2	5	2	<1																			<0.01			
661383	5418418	485489	Brambles Quarry	Outcrop	Carbonaceous pebbly qtz sst								127	31	43	<3	<5	<3	15	<5	70	6	<10	41	<10	<5	<2	<2	<10	<20	<20	50		
661384	5418440	485407	Brambles Quarry	Outcrop	Grey qtzose sst, sl ox								2605	369	40	8	31	19	94	10	78	4	<10	178	<10	<5	<2	4	<10	<20	<20	70		
661385	5418457	485426	Brambles Quarry	Outcrop	Pink hematized qtz sst, sl leached								1252	207	5	5	<5	5	22	<5	52	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	70		
661386	5422336	485346	Jetsons Quarry	Outcrop	Sl sericitic pebbly qtzose sst								1135	191	16	5	22	5	51	<5	146	3	<10	<30	<10	<5	<2	<2	<10	<20	<20	80		
661387	5423151	484847	Jetsons Shaft	Dump	Qtz-chlorite veins	<0.01	-	11	8	<3	61	<1																			<0.01			
661388	5423151	484847	Jetsons Shaft	Dump	Pink ox limonitic qtzose siltst								4785	272	97	17	159	43	404	8	84	6	<10	205	39	13	2	12	13	<20	<20	140		
661389	5423224	484795	Lt Supply R	Outcrop	Qtz-mica siltstone								5087	345	104	17	135	40	360	8	92	4	12	284	38	14	2	10	13	<20	<20	135		
661390	5427314	483359	Bald Tier	Outcrop	Pale grey limestone								636	59	5	<3	13	13	67	175	15	<3	<10	123	<10	<5	<2	<2	<10	<20	<20	<25		
661391	5418462	485454	Brambles Quarry	Outcrop	White qtz conglomerate	Reference Sample																												
661392	5418440	485407	Brambles Quarry	Outcrop	Limonitic grey-black shale								6484	347	132	21	234	43	652	21	177	10	<10	150	24	<5	6	18	21	<20	<20	220		
661393	5423578	481831	Frankford Quarry	Outcrop	Pink foliated sericitic qtz sst	Reference Sample																												
661394	5423583	481822	Frankford Quarry	Outcrop	Pink coarse gr qtz sst	Reference Sample																												
661395	5423598	481796	Frankford Quarry	Outcrop	Strongly hematized qtz conglomerate								655	59	11	<3	9	7	25	22	564	<3	<10	<30	<10	<5	<2	<2	<10	<20	<20	75		
661396	5423610	481760	Frankford Quarry	Outcrop	Pink hematized qtz sst								1143	78	15	5	23	7	62	27	393	5	<10	40	<10	<5	<2	<2	<10	<20	<20	70		
661397	5423666	481699	Frankford Quarry	Outcrop	Pink hematized qtz microconglomerate	Reference Sample																												
661398	5423888	482098	Frankford Quarry	Outcrop	White qtz sst with pebble layers	Reference Sample																												
661399	5422336	485346	Jetsons Quarry	Outcrop	White qtz microconglomerate	Reference Sample																												
661400	5422463	485182	Jetsons Quarry	Outcrop	Leached White qtz sst	Reference Sample																												
661401	5423993	481863	Frankford Quarry	Outcrop	Pink hematized qtz sst								1216	52	10	5	12	4	38	29	391	<3	<10	31	<10	<5	<2	<2	<10	<20	<20	90		
661402	5423860	482147	Frankford Quarry	Outcrop	Leached pink hematized qtz sst	Reference Sample																												
661403	5418440	485407	Frankford Quarry	Outcrop	Dk grey-black qtz conglomerate								557	76	17	<3	8	8	62	5	517	3	<10	43	<10	<5	<2	<2	<10	<20	<20	55		
661404	5423827	482266	Frankford Quarry	Outcrop	Highly limonitic qtz conglomerate	<0.01	-	58	18	<3	10	<1																			<0.01			
661420	5424402	487086	Clarks Hill	Outcrop	Fossiliferous grey qtz-mica sst	For Fossil Identification																												

NOTE: Samples 661407-419 taken by D. Atchison and reported in his thesis.

532043

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APPENDIX 2

Stream Sediment Sample Ledger

APPENDIX 2 : STREAM SEDIMENT SAMPLE LEDGER, MT CARELESS EL31/96

Sample Number	N	E	Location	Type	Description	PPB	Values in PPM					%
							Au	As	Cu	Pb	Zn	
661117	5424405	483185	Supply R	-80 Mesh	Fair trap site. Ck 5m wide, flowing	4	19	9	<3	33	<1	
661118	5424408	483125	TR trib of Supply R	-80 Mesh	Fair trap site. Ck 2m wide, dry	<2	17	5	7	10	<1	
661119	5421498	482897	Lt Supply R	-80 Mesh	Good trap site. Ck 3m wide, flowing	10	<1	24	3	47	<1	
661120	5422040	483877	Lt Supply R	-80 Mesh	Poor trap site. Ck 3m wide, flowing	6	<1	15	4	26	<1	
661121	5422201	483925	TL trib of Lt Supply R	-80 Mesh	Good sample-minor organics. Ck 2m wide, flowing	4	<1	16	5	35	<1	
661122	5422915	484583	TR trib of Lt Supply R	-80 Mesh	Good sample, with organics. Ck 0.5m wide, flowing	<2	<1	10	4	25	<1	
661124	5425918	481820	Upper Supply R	-80 Mesh	Fair sample, some organics. Ck 4m wide, flowing	6	6	29	7	67	<1	
661125	5425943	481832	TL trib of Supply R	-80 Mesh	Good sample. Ck 3m wide, flowing	4	<1	20	7	69	<1	
661127	5426019	482212	TL trib of Supply R	-80 Mesh	Good sample. Ck 4m wide, flowing	3	5	14	8	35	<1	
661129	5425086	483078	Upper Supply R	-80 Mesh	Fair sample. Ck 4m wide, flowing	2	<1	17	14	116	<1	
661130	5425113	483152	TL trib of Supply R	-80 Mesh	Fair sample. Ck 5m wide, dry	2	<1	16	5	23	<1	
661131	5422537	483595	TL trib of Lt Supply R	-80 Mesh	Fair sample, some organics. Ck 5m wide, dry	6	3	22	<3	26	<1	
661352	5424483	486993	Clarkes Hill	-80 Mesh	Fair sample, clayey. Ck 4m wide, flowing	<10	9	9	26	70	<1	0.02

NOTE: All samples (except 661352) damaged by fire in Analabs laboratory. Consequently sample packets for 661120-661122, 661125 & 661129 could not be distinguished and results for these samples are interchangeable

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APPENDIX 3

Petrological Descriptions (R. Bottrill)

Petrological Investigations: Mt Careless

An unpublished report for Allstate Explorations NL

R.S. Bottrill 15/05/98

Introduction

14 rock samples from the Ordovician sedimentary sequences in this area were collected and submitted for petrographic description and interpretation, plus photography.

Summary

The rocks can be classified into six distinct groups, although it is usually difficult to be completely certain of their provenance: micaceous quartz arenite (Ordovician-Devonian?); arenaceous phyllites (Precambrian?); quartzitic conglomerates (Ordovician); quartzite (Precambrian?); silty slate (Ordovician-Devonian?) and sandy limestone (Ordovician).

Sample Identification

Sample No.	Description
661248	Quartz mica sandstone
661272	Quartzose sandstone
661277	Quartzose sandstone
661282	Quartzose sandstone
661284	Quartz conglomerate
661288	Quartzose sandstone
661290	Sandy limestone
661295	Quartzose schist
661299	Pyritic quartzite
661304	Quartzose sandstone
661308	Quartz mica siltstone
661313	Quartz mica siltstone
661314	Quartz conglomerate
661316	Quartz conglomerate

Petrographic Descriptions

Group 1: Micaceous quartz arenite (Ordovician-Devonian?)

661272, 661277, 661282, 661288, 661304

These rocks are all virtually identical, excepting 661304. They are all very fine grained, highly micaceous, sublitharenites, with a weak foliation. They contain very fine sand to silt sized quartz and ~5-10% phyllitic lithics, plus ~ 5% of muscovite flakes, minor chlorite, and traces of tourmaline and possibly graphite. Sample 661304 is similar but highly carbonate-altered, with ~25% siderite, as irregular grains and rhombs to about 0.2 mm. The rocks are similar to much of the Mathinna Beds, but may be from the upper Ordovician sequences.

Group 2: Arenaceous phyllites/quartz wackes (Precambrian?)

661248, 661295, 661313

These rocks are all virtually identical, and somewhat similar to the above group. They are all very fine grained, micaceous and chloritic quartz wackes, with two strong foliations (at about 30°) giving a strong phyllitic character. They contain very fine sand to silt sized, mostly recrystallised, quartz and sericite, cut by abundant crenulated, chloritic, carbonaceous(?) muscovite rich laminae, plus traces of tourmaline and zircon. They are all moderately carbonate-altered, with ~5-10% fine siderite, as irregular grains and rhombs to about 0.1 mm, partly weathered to limonite. They resemble much of the Mathinna Beds, but the stronger foliation suggest that they may be from the Precambrian sequences.

Group 3: Quartzitic conglomerates (Ordovician)

661284, 661314, 661316

These rocks are all highly sheared, quartzite-textured conglomerates, with siliceous clasts to ~2 cm. The clasts include quartz, quartz arenite and chert, in a matrix of micaceous quartz with graphite(?) and pyrite(?). 661314 contains more sericite and hematite in the groundmass, and some detrital leucoxene, tourmaline and zircon, and possibly chromite. 661316 contains a hematitic cherty clast derived by silicification of ultrabasics. These rocks are probably from the Cabbage Tree Conglomerate or Owen Conglomerate; especially those containing ultramafic-derived material.

Group 4: Quartzite

661299

This rock is an unfoliated, quartzite-textured, medium grained (~0.5 mm) quartz wacke with about 5% sericitic mica disseminated in the quartzose matrix. There is a trace of detrital tourmaline and pyrite. It may be a relatively pure Ordovician arenite from the Cabbage Tree Conglomerate.

Group 5: Silty Slate

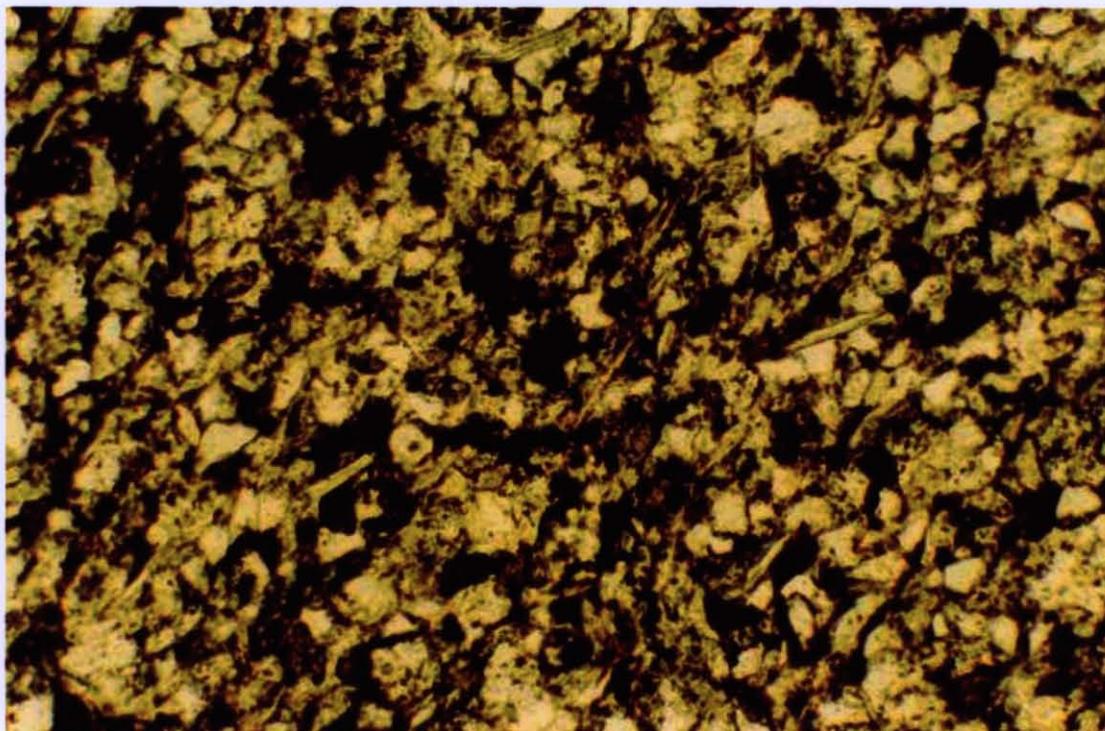
661308

This rock is a laminated, micaceous, lithic rich siltstone, or a silty slate, as it has a moderate slaty foliation. It may be of Ordovician-Devonian age.

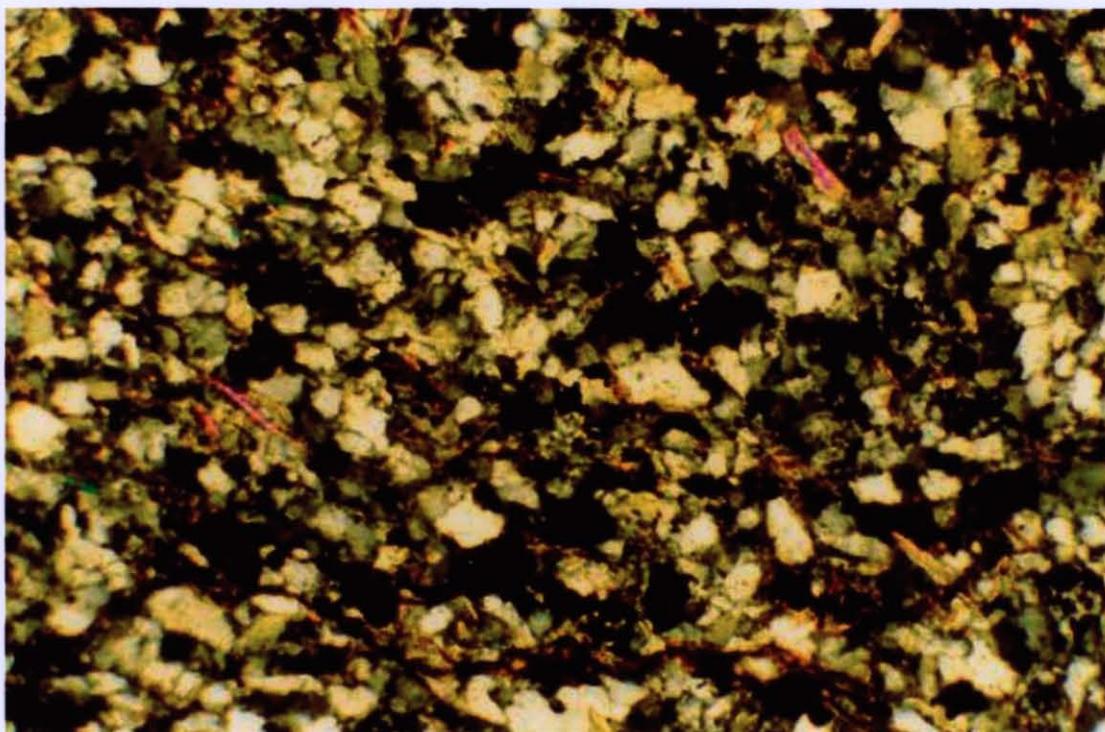
Group 6: Sandy micaceous Limestone

661290

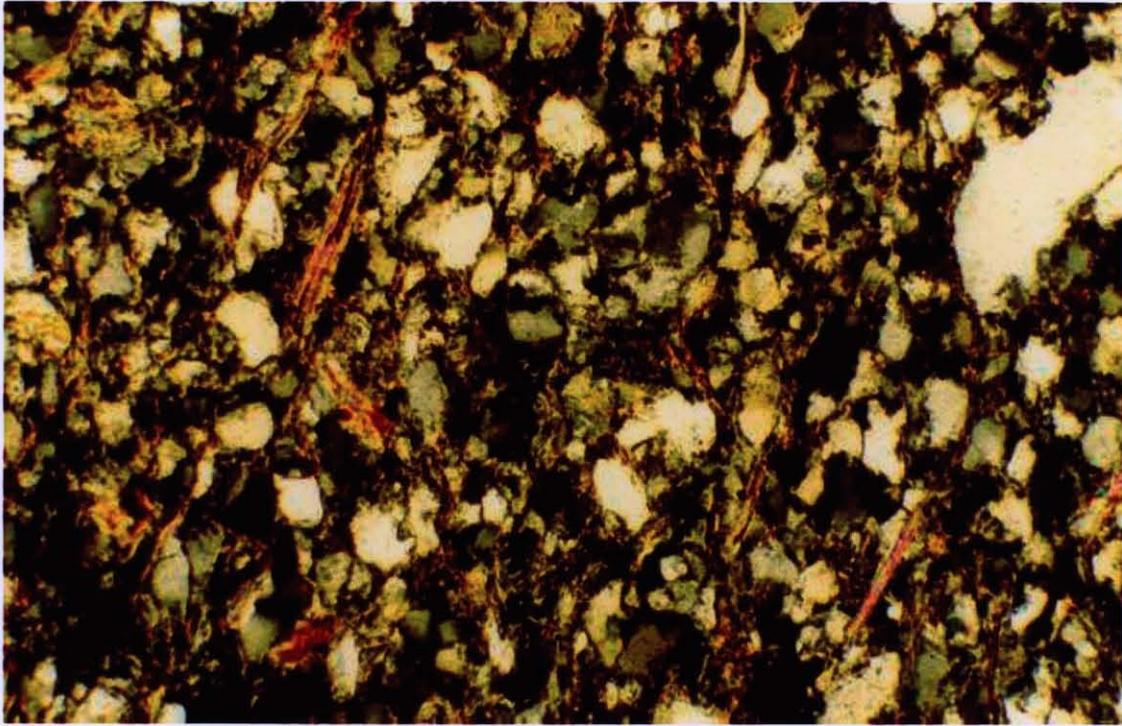
This rock appears to be mostly composed of a mesocrystalline sparry carbonate of two generations: probably all calcite, with ~10% quartz (fine-medium sand sized) and ~5% muscovite flakes. There are also traces of detrital tourmaline and zircon, and minor pyrite. It is probably from the Ordovician Transition Beds.

Group 1: Micaeous quartz arenite (Ordovician-Devonian?)

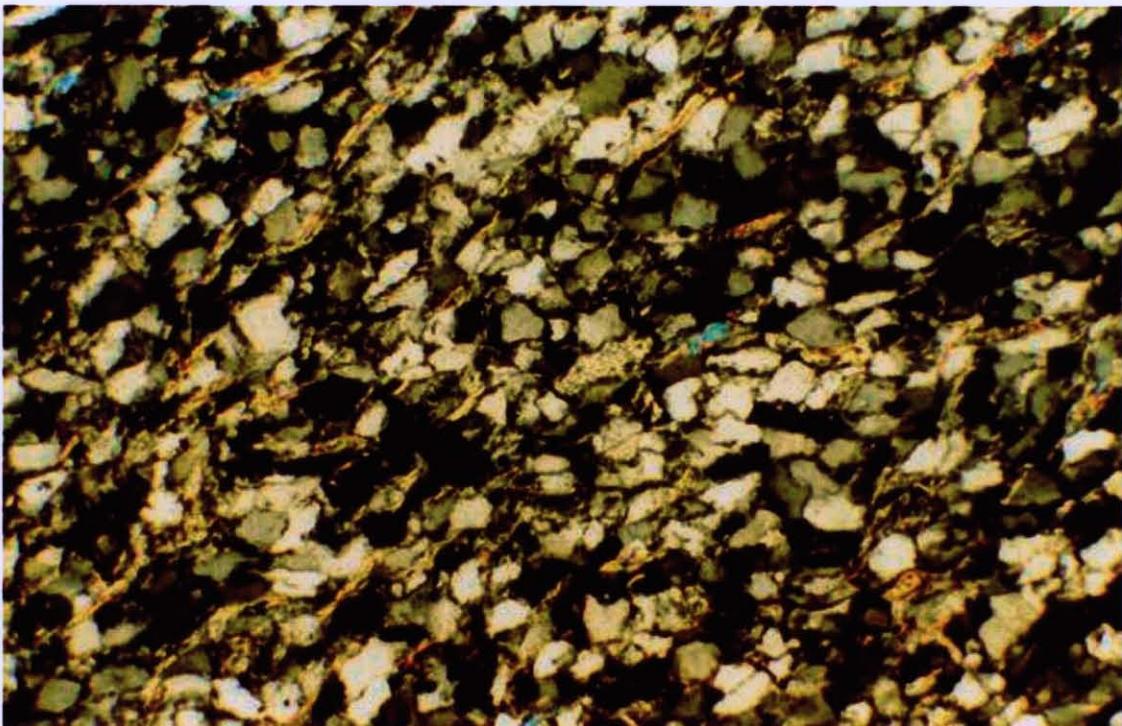
661272 (x 6.3) (Field of View 1.7 x 1.1mm)



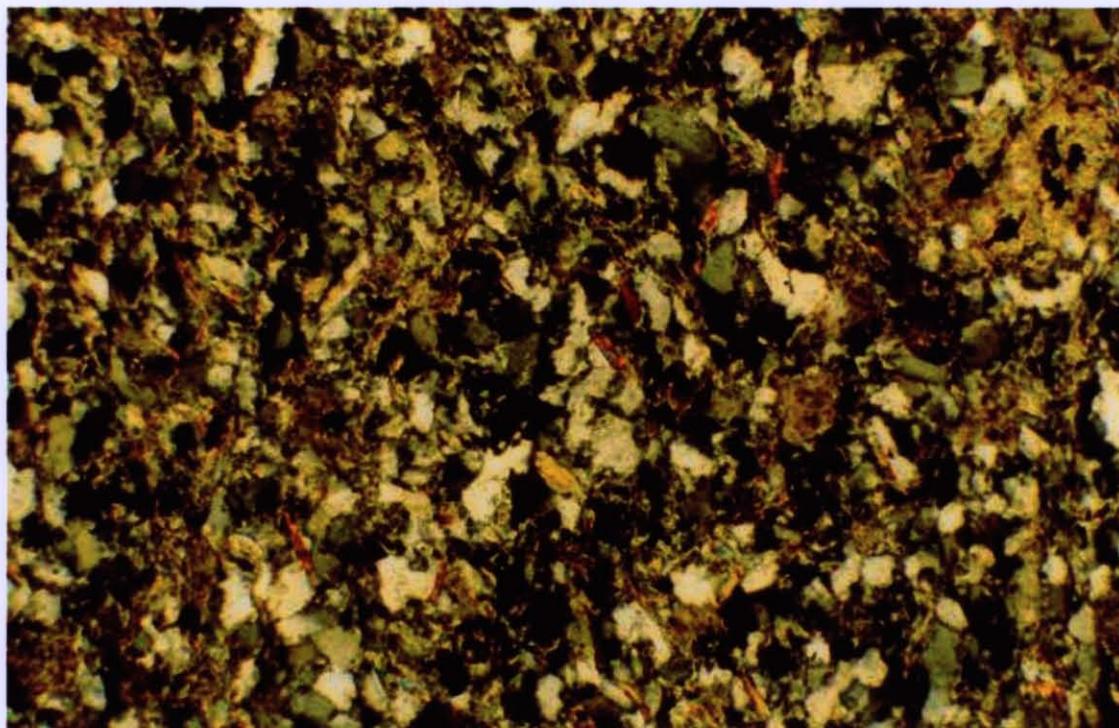
661277 (x 6.3) (Field of View 1.7 x 1.1mm)



661282 (x 6.3) (Field of View 1.7 x 1.1mm)

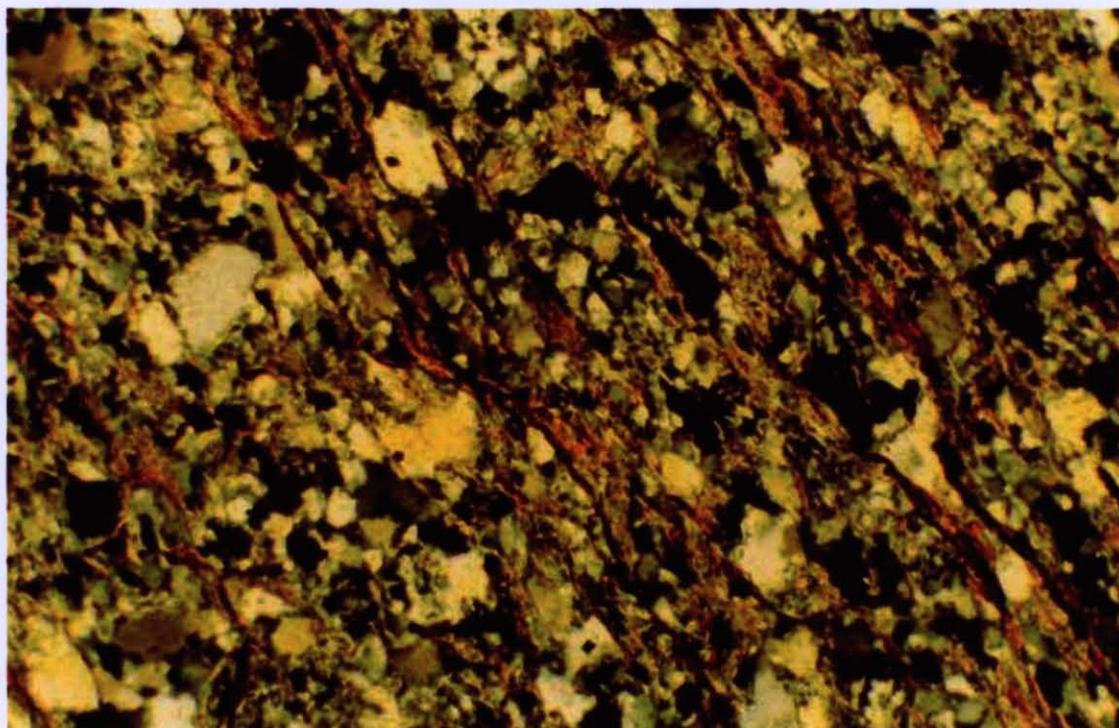


661288 (x 6.3) (Field of View 1.7 x 1.1mm)

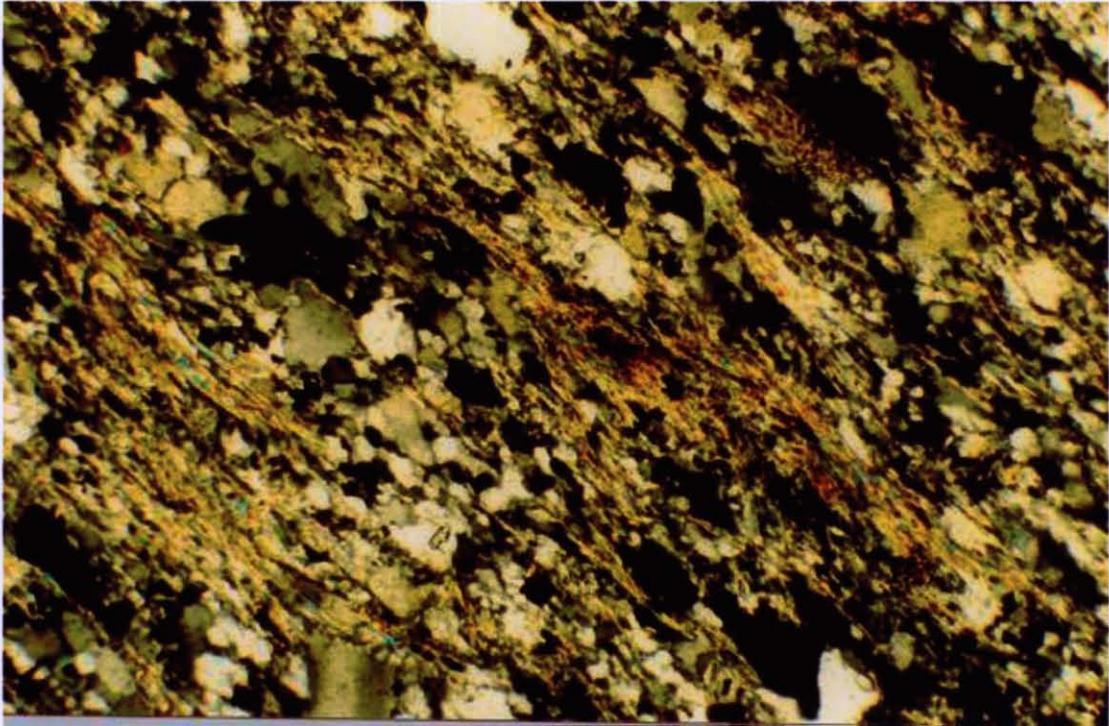


661304 (x 6.3) (Field of View 1.7 x 1.1mm)

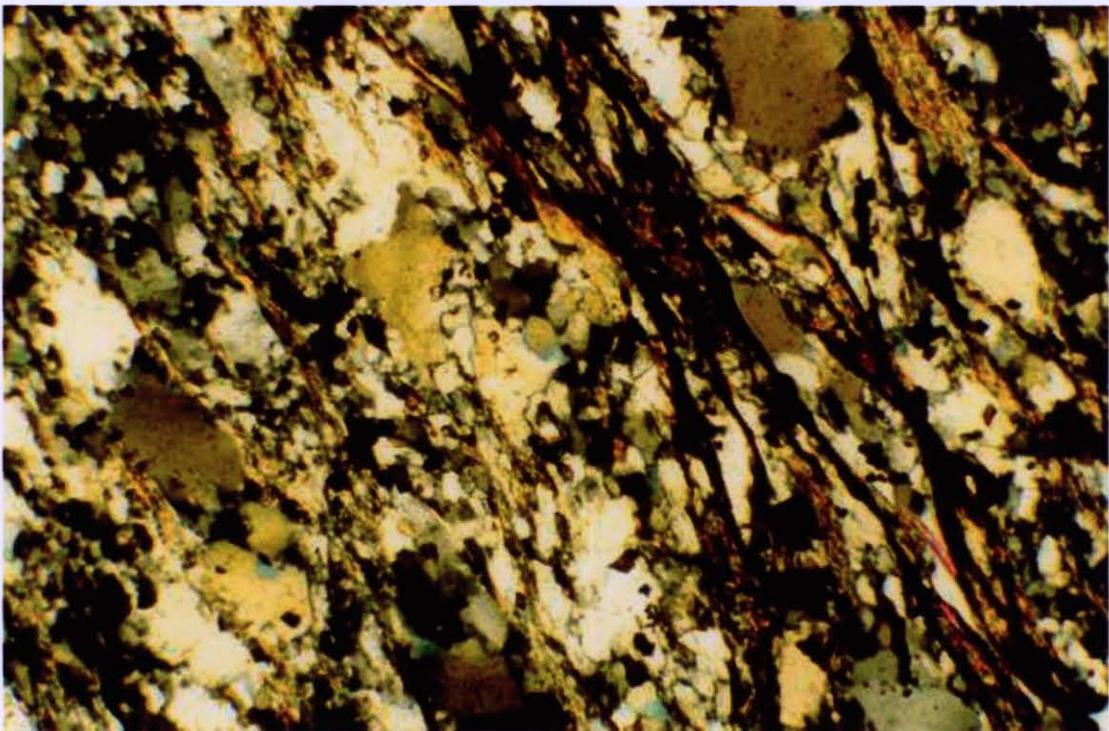
Group 2: Arenaceous phyllites/quartz wackes (Precambrian?)



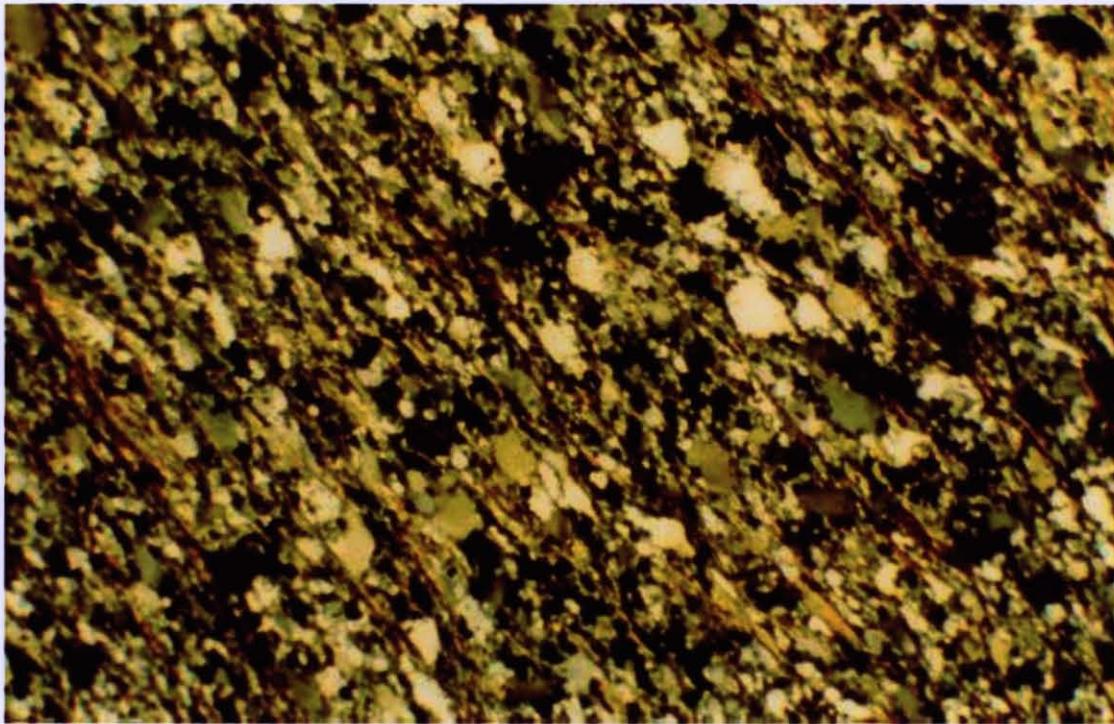
661248 (x 6.3) (Field of View 1.7 x 1.1mm)



661295 (x 6.3) (Field of View 1.7 x 1.1mm)

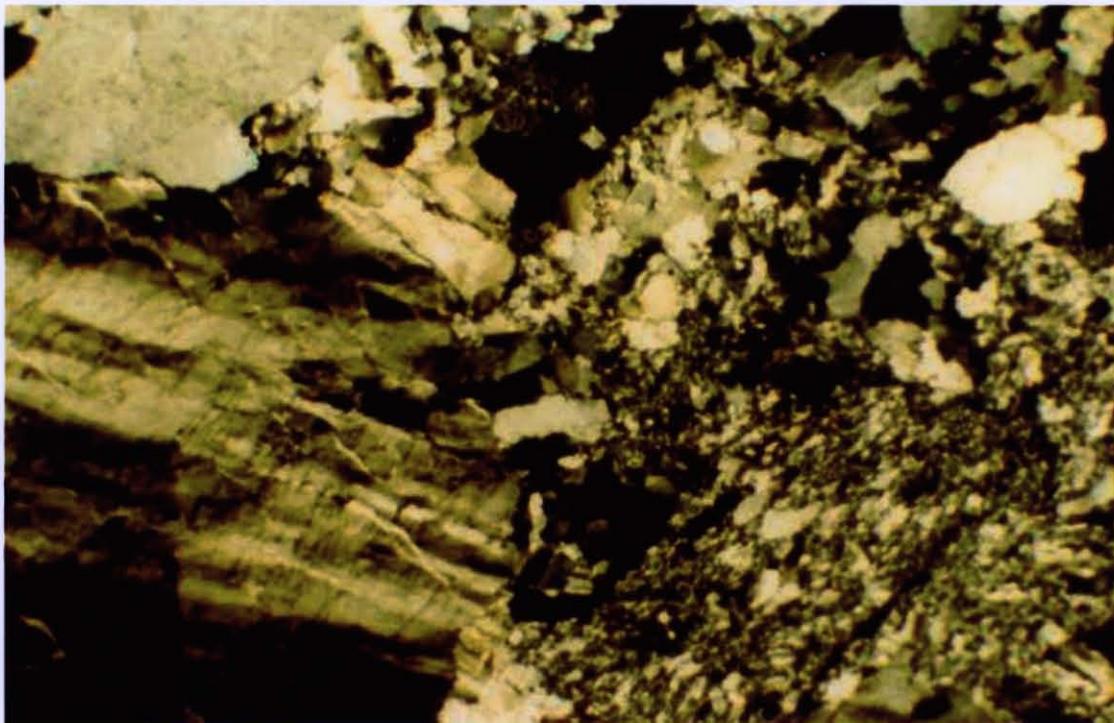


661313 (x 6.3) (Field of View 1.7 x 1.1mm)

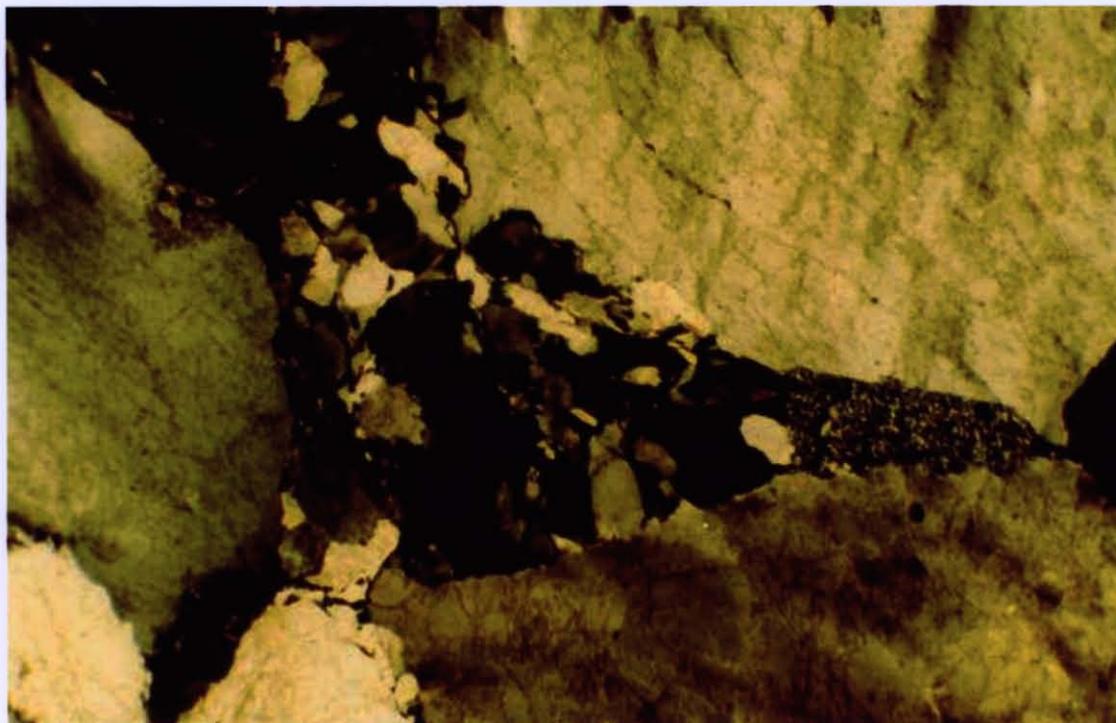


661313 (x 2.5) (Field of View 4.3 x 2.8mm)

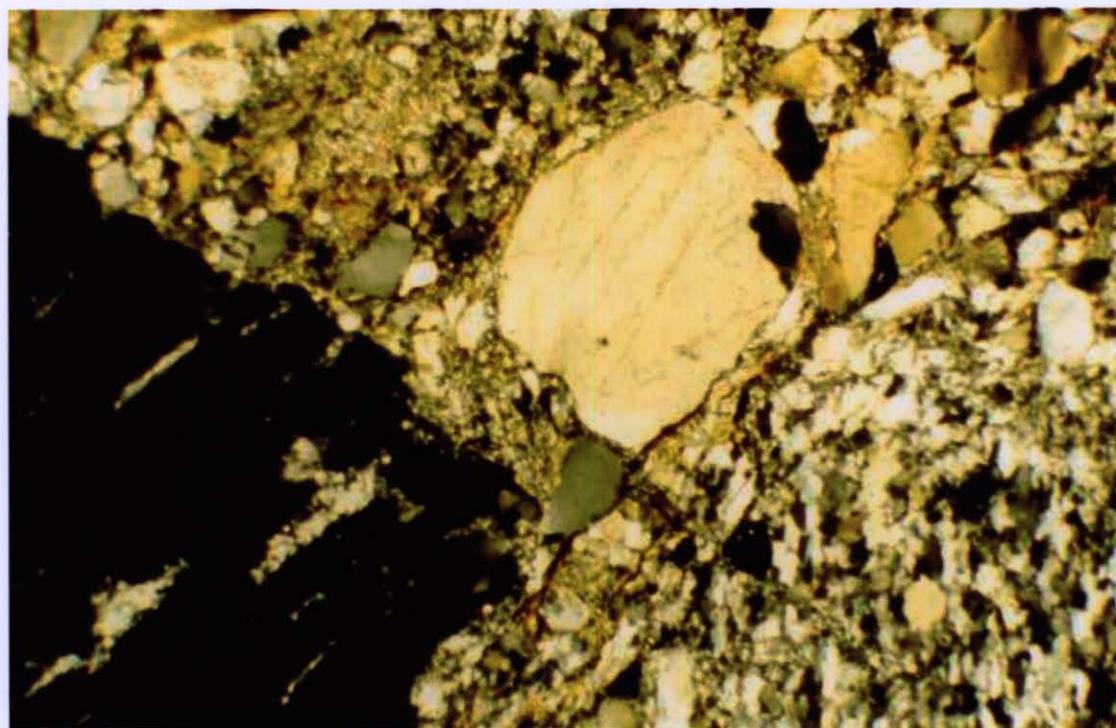
Group 3: Quartzitic conglomerates (Ordovician)



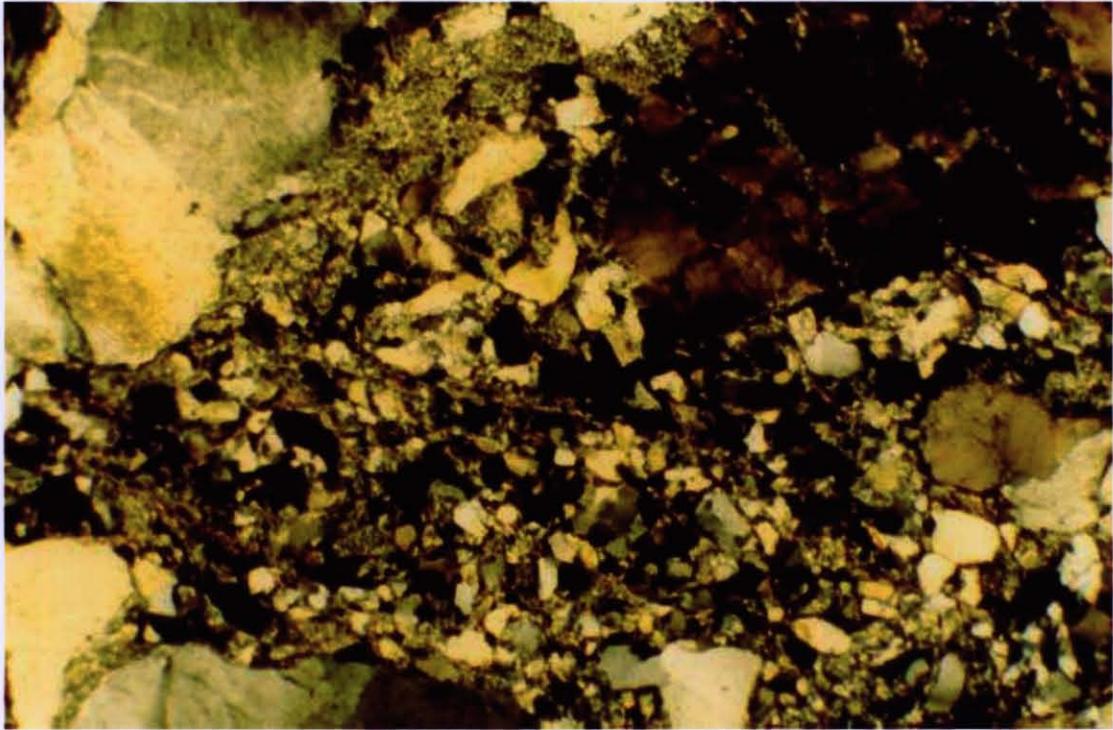
661284 (x 2.5) (Field of View 4.3 x 2.8mm)



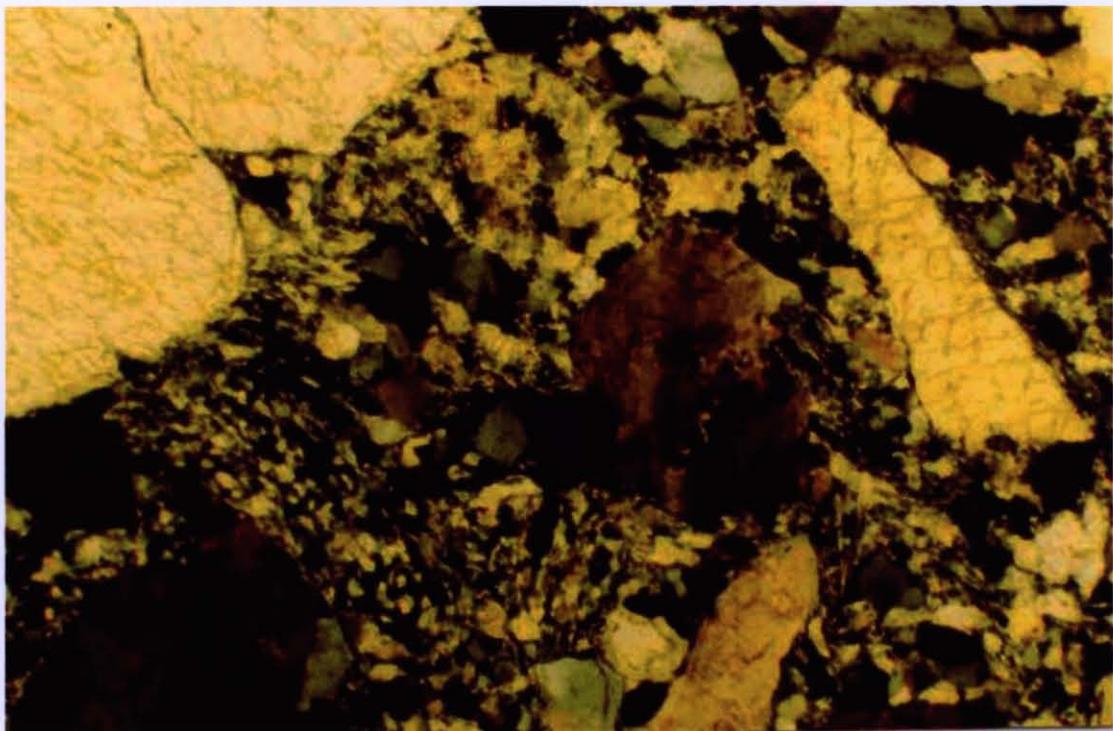
661284 (x 2.5) (Field of View 4.3 x 2.8mm)



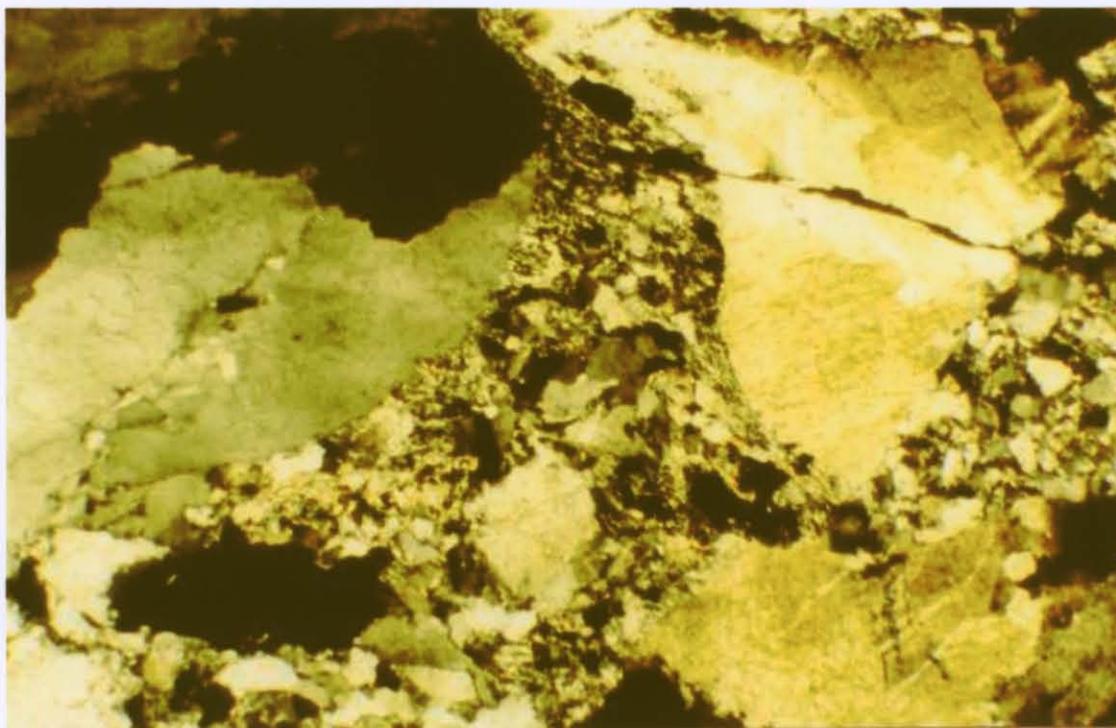
661314 (x 2.5) (Field of View 4.3 x 2.8mm)



661314 (x 2.5) (Field of View 4.3 x 2.8mm)

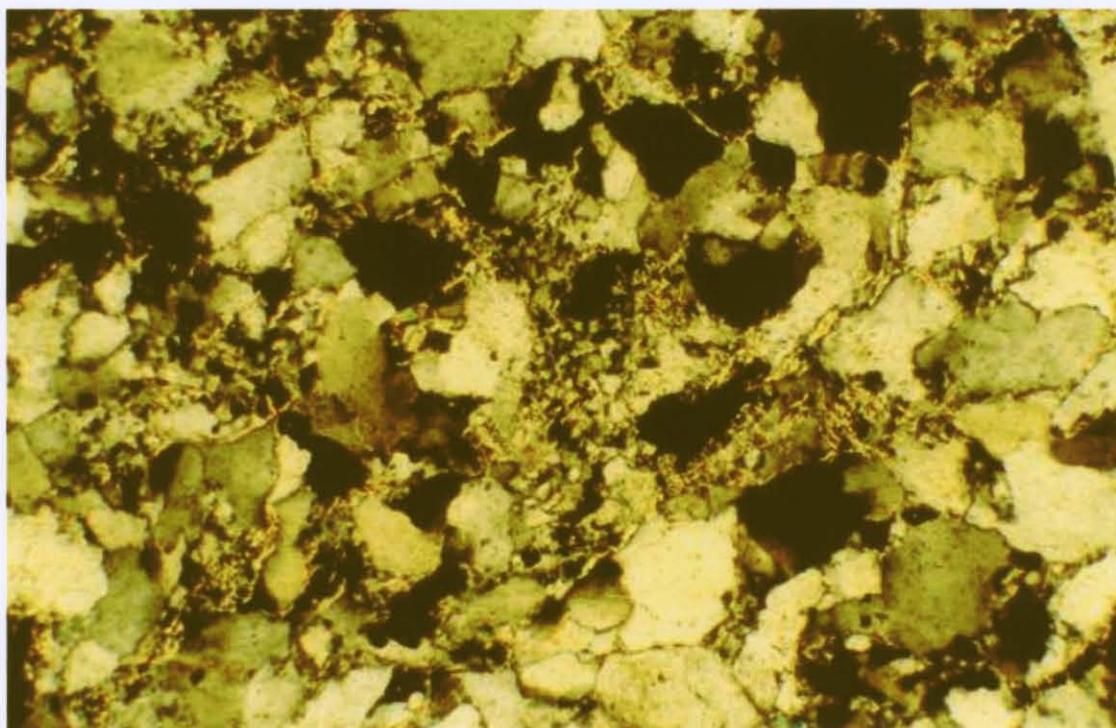


661316 (x 2.5) (Field of View 4.3 x 2.8mm)

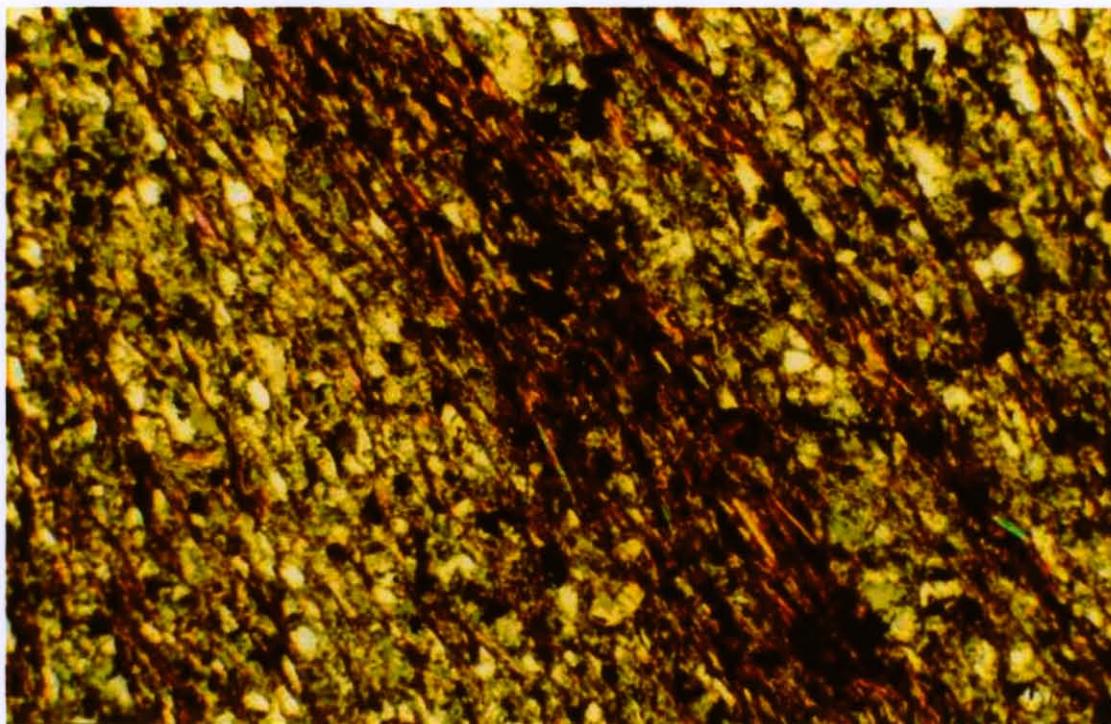


661316 (x 2.5) (Field of View 4.3 x 2.8mm)

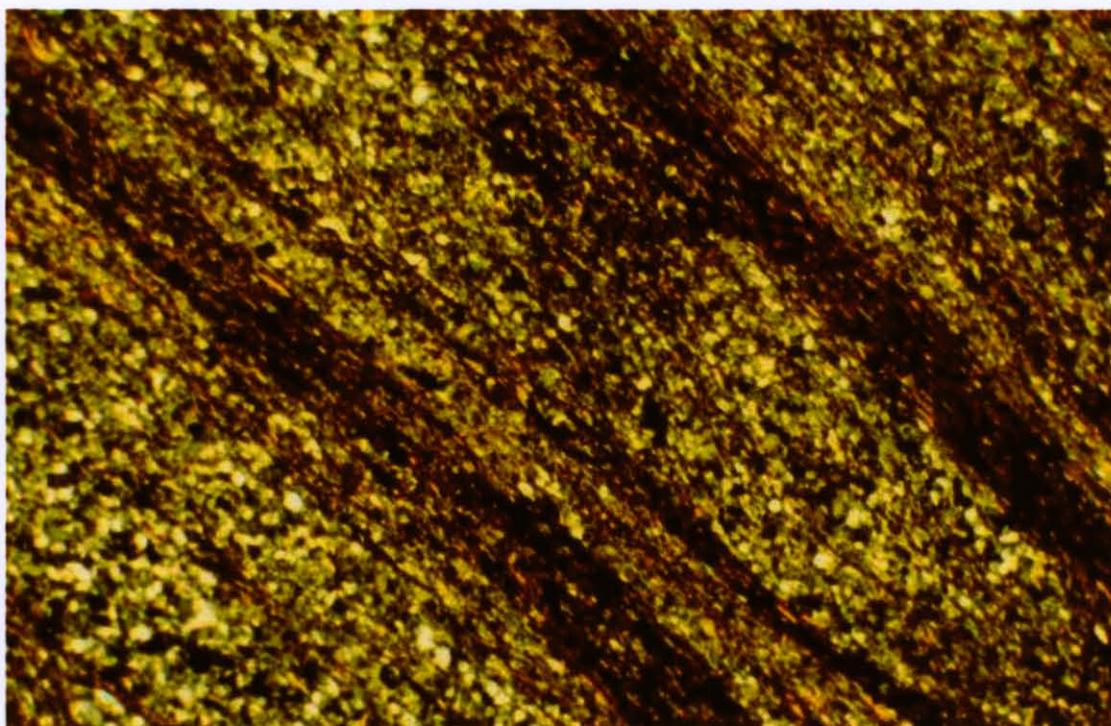
Group 4: Quartzite



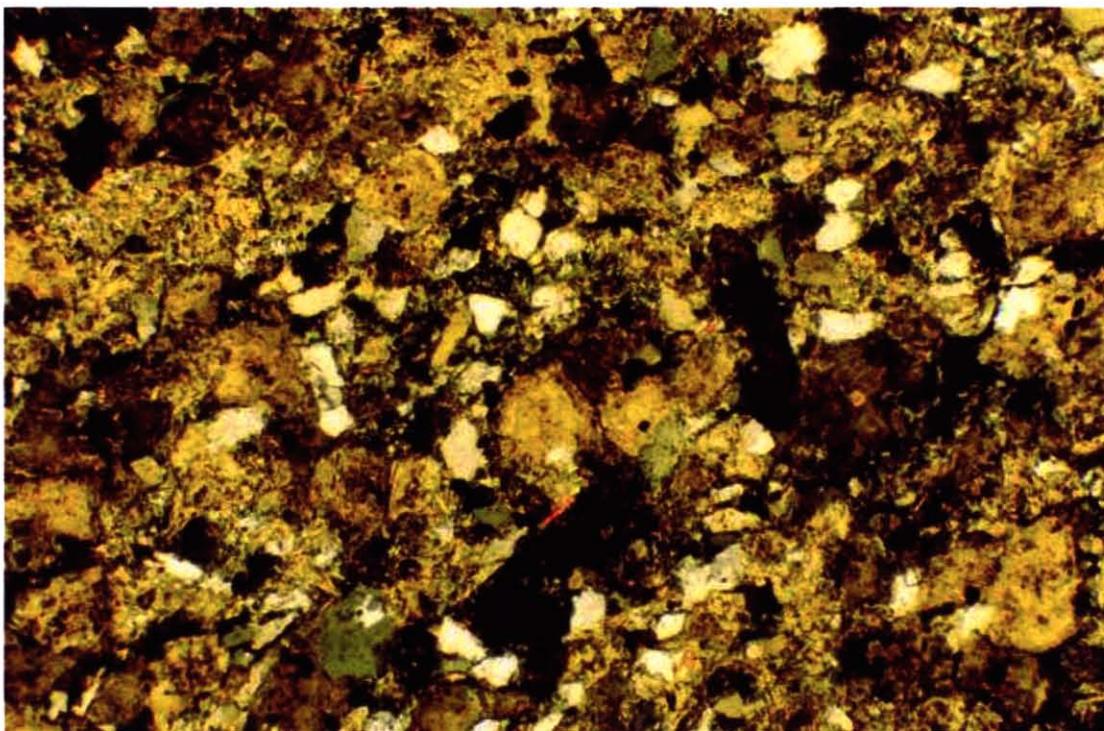
661299 (x 6.3) (Field of View 1.7 x 1.1mm)

Group 5: Silty slate

661308 (x 6.3) (Field of View 1.7 x 1.1mm)



661308 (x 2.5) (Field of View 4.3 x 2.8mm)

Group 6: Sandy micaceous limestone

661290 (x 6.3) (Field of View 1.7 x 1.1mm)

532061

**EL 31/96 MT CARELESS
Annual Report 1998**

APPENDIX 4

Geochemical Assay Sheets

532062

A N A L A B S



Our reference : BU014411
Your reference : WCAP458618
Project code : Mt Careless - Rock Chip
Date received : 10/03/98
Date reported : 17/03/98

Analabs Pty. Ltd.
ACN 004 591 664
14 Thirkell St, Burnie
Tasmania 7320
Telephone : (004) 31 6837
Facsimile : (004) 31 8890

Peter Hills
Project Geologist

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Number of pages of results : 2
Number of Samples : 38
First Sample : 661249
Last Sample : 661312

Invoice to:
Peter Hills
Project Geologist

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Electronic Data Transmission :
Modem //
Facsimile //
Disk Report //

Preliminary Reports :
17/03/98 Report

Results to:

Results to:

Remarks :

Authorised by
On behalf of:

Richard Newman
Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory for preparation and/or analysis as requested by the client.



Our reference : BU014411
 Your reference : WCAP458618
 Project code : Mt Careless - Rock Chip
 Report date : 17/03/98
 Report status : Final
 Page : 2 of 2

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (004) 31 6837
 Facsimile : (004) 31 8890

ANALYTICAL DATA

Sample	Cu	Pb	Zn	Ag	As
661249	14	<3	13	<1	<50
661250	9	<3	22	<1	<50
661258	3	<3	5	<1	<50
661259	7	<3	8	<1	<50
661260	5	6	18	<1	948
661261	2	<3	2	<1	<50
661262	7	<3	23	<1	<50
661263	10	4	14	<1	<50
661264	6	<3	20	<1	<50
661265	67	8	28	1	198
661266	<2	<3	39	<1	<50
661268	5	<3	34	<1	56
661269	8	<3	29	<1	<50
661270	7	<3	8	<1	<50
661273	3	<3	8	<1	<50
661274	32	<3	12	<1	373
661275	8	<3	<2	<1	62
661279	3	<3	<2	<1	<50
661280	2	<3	<2	<1	<50
661281	4	<3	20	<1	<50
661283	4	<3	<2	<1	<50
661284	5	<3	<2	<1	<50
661285	4	<3	36	<1	62
661286	6	<3	19	<1	<50
661287	4	<3	32	<1	<50
661291	6	<3	23	<1	<50
661292	4	<3	6	<1	<50
661296	19	<3	19	<1	<50
661297	4	<3	8	<1	<50
661299	11	<3	3	<1	<50
661300	<2	<3	<2	<1	<50
661301	6	<3	<2	<1	<50
661302	3	<3	10	<1	<50
661306	15	<3	2	<1	<50
661309	24	<3	300	<1	<50
661310	8	3	14	<1	<50
661311	13	<3	27	<1	<50
661312	8	<3	8	<1	<50
Method Units Detection Limit	A102 ppm 2	A102 ppm 3	A102 ppm 2	A102 ppm 1	A102 ppm 50

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received



ANALYSIS DESCRIPTION

Job number : BU014411 Order number : WCAP458618

Scheme code : S033 - Drillcore/Rock; Dry, Jaw crush, Fine pulv, Ring

Sample preparation. Drillcore, Rock samples; Dry,
Jaw crush, Fine pulverise, Ringmill, <3.5kg

Scheme code : F630 - 30g fire assay, Lead collection, AAS

Fire assay, Lead collection, Aqua Regia digest,
AAS, 30g sample.

Scheme code : G102 - Triple acid digest, Geochemical samples

Triple acid digest, (HCl, HNO₃, HClO₄), Geochemical
samples.

Scheme code : A102 - AAS analysis

AAS analysis of sample after G102 digest.

Scheme code : V821 - Total Sulphur Analysis

Leco tube furnace, Total Sulphur.

Scheme code : H102 - Hydride AAS analysis

Hydride AAS analysis after G102 digest.



Our reference : BU014462
 Your reference : **PURVIS - REDLINE**
 Project code : Stream Sediments
 Date received : 19/03/98
 Date reported : 27/03/98

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (004) 31 6837
 Facsimile : (004) 31 8890

Peter Hills

Beaconsfield Mine Joint Venture
 P.O.Box 58
 BEACONSFIELD

TAS 7270

Number of pages of results : 2
 Number of Samples : 16
 First Sample : LIMONITE BROWN
 Last Sample : UNKNOWN SEDIMENT E

Invoice to:
 Peter Hills

Beaconsfield Mine Joint Venture
 P.O.Box 58
 BEACONSFIELD

TAS 7270

Electronic Data Transmission :
 Modem //
 Facsimile //
 Disk Report //

Preliminary Reports :
 26/03/98 Report
 27/03/98 Report

Results to:

Results to:

Remarks :

Authorised by
 On behalf of:

Richard Newman
 Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory
 for preparation and/or analysis as requested by the client.



ANALYSIS DESCRIPTION

Job number : BU014462 Order number : PURVIS - REDLINE

Scheme code : S020 - Dry, Ringmill < 500g

Sample preparation. Dry, Ringmill. < 500g.

Scheme code : F614 - 50g fire assay, Lead collection, DIBK, AAS

Fire assay, Lead collection, Aqua Regia digest,
DIBK extraction, AAS, 50g sample.

Scheme code : G102 - Triple acid digest, Geochemical samples

Triple acid digest, (HCl, HNO₃, HClO₄), Geochemical
samples.

Scheme code : A102 - AAS analysis

AAS analysis of sample after G102 digest.

Scheme code : H102 - Hydride AAS analysis

Hydride AAS analysis after G102 digest.



Our reference : BU014778
Your reference : WCAP 302247
Project code : ROCK SAMPLES
Date received : 16/06/98
Date reported : 03/07/98

Analabs Pty. Ltd.
ACN 004 591 664
14 Thirkell St, Burnie
Tasmania 7320
Telephone : (004) 31 6837
Facsimile : (004) 31 8890

Gerald Purvis

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Number of pages of results : 2
Number of Samples : 36
First Sample : 661317
Last Sample : 661358

Invoice to:
Gerald Purvis

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Electronic Data Transmission :
Modem //
Facsimile //
Disk Report //

Preliminary Reports :
24/06/98 Report

Results to:

Results to:

Remarks :

Authorised by
On behalf of:

Richard Newman
Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory for preparation and/or analysis as requested by the client.



Our reference : BU014778
 Your reference : WCAP 302247
 Project code : ROCK SAMPLES
 Report date : 03/07/98
 Report status : Final
 Page : 2 of 2

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (004) 31 6837
 Facsimile : (004) 31 8890

ANALYTICAL DATA

Sample	Cu	Pb	Zn	Ag	As
661317	4	5	5	<1	<50
661318	6	12	11	<1	<50
661319	20	14	7	<1	<50
661320	6	5	3	<1	70
661321	58	392	215	<1	<50
661322	25	36	99	1	<50
661323	31	32	43	<1	<50
661324	15	<3	6	<1	<50
661325	8	<3	4	<1	<50
661326	32	10	10	<1	114
661327	20	9	19	<1	<50
661328	45	39	55	<1	177
661330	19	3	47	<1	<50
661331	13	<3	42	<1	<50
661332	3	<3	5	<1	<50
661333	12	<3	35	<1	<50
661334	6	<3	9	<1	<50
661335	4	<3	2	<1	<50
661336	6	4	11	<1	<50
661338	5	<3	9	<1	<50
661339	6	<3	14	<1	<50
661340	7	4	8	<1	<50
661341	4	<3	<2	<1	<50
661342	8	<3	20	<1	<50
661343	7	<3	24	<1	<50
661344	17	11	32	<1	<50
661345	2	<3	<2	<1	<50
661346	2	<3	<2	<1	<50
661347	3	3	<2	<1	<50
661348	<2	<3	3	<1	<50
661349	2	3	<2	<1	<50
661350	5	9	<2	<1	<50
661352	9	26	70	<1	<50
661354	2	5	<2	<1	<50
661357	17	10	<2	<1	<50
661358	6	7	<2	<1	<50
Method	A102	A102	A102	A102	A102
Units	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	3	2	1	50

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received



ANALYSIS DESCRIPTION

Job number : BU014778 Order number : WCAP 302247

Scheme code : S033 - Drillcore/Rock; Dry, Jaw crush, Fine pulv, Ring

Sample preparation. Drillcore, Rock samples; Dry,
Jaw crush, Fine pulverise, Ringmill, < 3.5kg

Scheme code : F630 - 30g fire assay, Lead collection, AAS

Fire assay, Lead collection, Aqua Regia digest,
AAS, 30g sample.

Scheme code : G102 - Triple acid digest, Geochemical samples

Triple acid digest, (HCl, HNO₃, HClO₄), Geochemical
samples.

Scheme code : A102 - AAS analysis

AAS analysis of sample after G102 digest.

Scheme code : V821 - Total Sulphur Analysis

Leco tube furnace, Total Sulphur.

Scheme code : H102 - Hydride AAS analysis

Hydride AAS analysis after G102 digest.



Our reference : BU014784
Your reference : WTXA072708
Project code : Rock Samples
Date received : 17/06/98
Date reported : 08/07/98

Analabs Pty. Ltd.
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14 Thirkell St, Burnie
Tasmania 7320
Telephone : (004) 31 6837
Facsimile : (004) 31 8890

Gerald Purvis

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Number of pages of results : 2
Number of Samples : 4
First Sample : 661361
Last Sample : 661366

Invoice to:
Gerald Purvis

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Electronic Data Transmission :
Modem //
Facsimile //
Disk Report //

Preliminary Reports :
24/06/98 Report

Results to:

Results to:

Remarks :

Authorised by
On behalf of:

Richard Newman
Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory for preparation and/or analysis as requested by the client.



ANALYSIS DESCRIPTION

Job number : BU014784 Order number : WTXA072708

Scheme code : S033 - Drillcore/Rock; Dry, Jaw crush, Fine pulv, Ring

Sample preparation. Drillcore, Rock samples; Dry,
Jaw crush, Fine pulverise, Ringmill, <3.5kg

Scheme code : F630 - 30g fire assay, Lead collection, AAS

Fire assay, Lead collection, Aqua Regia digest,
AAS, 30g sample.

Scheme code : G102 - Triple acid digest, Geochemical samples

Triple acid digest, (HCl, HNO₃, HClO₄), Geochemical
samples.

Scheme code : A102 - AAS analysis

AAS analysis of sample after G102 digest.

Scheme code : V821 - Total Sulphur Analysis

Leco tube furnace, Total Sulphur.



Our reference : BU014812
 Your reference : **WTXA072710**
 Project code : Rock Samples
 Date received : 24/06/98
 Date reported : 14/07/98

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St. Burnie
 Tasmania 7320
 Telephone : (004) 31 6837
 Facsimile : (004) 31 8890

Gerald Purvis

 Allstate Explorations NL
 PO Box 58
 Beaconsfield

 TAS 7270

Number of pages of results : 4
 Number of Samples : 27
 First Sample : 661248
 Last Sample : 661365

Invoice to:
 Gerald Purvis

 Allstate Explorations NL
 PO Box 58
 Beaconsfield

 TAS 7270

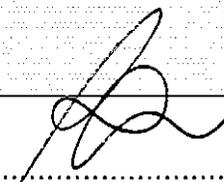
Electronic Data Transmission :
 Modem //
 Facsimile //
 Disk Report //

Preliminary Reports :
 09/07/98 Report
 10/07/98 Report

Results to:

Results to:

Remarks :

Authorised by
 On behalf of: 

Richard Newman
 Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory for preparation and/or analysis as requested by the client.



ANALYSIS DESCRIPTION

Job number : BU014812 Order number : WTXA072710

Scheme code : S033 - Drillcore/Rock; Dry, Jaw crush, Fine pulv, Ring

Sample preparation, Drillcore, Rock samples; Dry,
Jaw crush, Fine pulverise, Ringmill, <3.5kg

Scheme code : X401 - Pressed powder, XRF, Trace determination

Pressed powder, XRF, Trace determination.

Scheme code : G104 - Total acid digest, Geochemical samples

Total acid digest, (HF, HCl, HNO₃, HClO₄),
Geochemical samples.

Scheme code : I104 - ICP-AES analysis, Base metals

ICP-AES analysis of sample after G104 digest.,
Base metals.

Scheme code : G151 - Sodium peroxide fusion, Geochemical samples

Sodium peroxide fusion, (Na₂O₂), Geochemical
samples.

Scheme code : I151 - ICP-AES analysis, Base metals

ICP-AES analysis of sample after G151 fusion, Base
metals.



Our reference : BU014822
Your reference : WTXA072692 Part 1
Project code : Rock Samples
Date received : 25/06/98
Date reported : 10/07/98

Analabs Pty. Ltd.
ACN 004 591 664
14 Thirkell St, Burnie
Tasmania 7320
Telephone : (004) 31 6837
Facsimile : (004) 31 8890

Gerald Purvis

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Number of pages of results : 2
Number of Samples : 4
First Sample : 661387
Last Sample : 661406

Invoice to:
Gerald Purvis

Allstate Explorations NL
PO Box 58
Beaconsfield

TAS 7270

Electronic Data Transmission :
Modem //
Facsimile //
Disk Report //

Preliminary Reports :
03/07/98 Report

Results to:

Results to:

Remarks :

Authorised by
On behalf of:

Richard Newman
Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory for preparation and/or analysis as requested by the client.



ANALYSIS DESCRIPTION

Job number : BU014822 Order number : WTXA072692 Part 1

Scheme code : S033 - Drillcore/Rock; Dry, Jaw crush, Fine pulv, Ring

Sample preparation. Drillcore, Rock samples; Dry,
Jaw crush, Fine pulverise, Ringmill, < 3.5kg

Scheme code : F630 - 30g fire assay, Lead collection, AAS

Fire assay, Lead collection, Aqua Regia digest,
AAS, 30g sample.

Scheme code : G102 - Triple acid digest, Geochemical samples

Triple acid digest, (HCl, HNO₃, HClO₄), Geochemical
samples.

Scheme code : A102 - AAS analysis

AAS analysis of sample after G102 digest.

Scheme code : V821 - Total Sulphur Analysis

Leco tube furnace, Total Sulphur.

Scheme code : H102 - Hydride AAS analysis

Hydride AAS analysis after G102 digest.

Scheme code : G103 - Triple acid digest, Ore Grade samples

Triple acid digest, (HCl, HNO₃, HClO₄), Ore grade
samples.

Scheme code : A103 - AAS analysis

AAS analysis of sample after G103 digest.

ANALYSIS DESCRIPTION



Our reference : BU014825
 Your reference : **WTXA072692 Part 2**
 Project code : Rock Samples
 Date received : 26/06/98
 Date reported : 23/07/98

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (004) 31 6837
 Facsimile : (004) 31 8890

Gerald Purvis

 Allstate Explorations NL
 PO Box 58
 Beaconsfield

 TAS 7270

Number of pages of results : 4
 Number of Samples : 13
 First Sample : 661383
 Last Sample : 661383R

Invoice to:
 Gerald Purvis

 Allstate Explorations NL
 PO Box 58
 Beaconsfield

 TAS 7270

Electronic Data Transmission :
 Modem //
 Facsimile //
 Disk Report //

Preliminary Reports :
 16/07/98 Report

Results to:

Results to:

Remarks :

Authorised by
 On behalf of:

 Richard Newman
 Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory for preparation and/or analysis as requested by the client.

ANALYSIS DESCRIPTION

Job number : BU014825 Order number : WTXA072692 Part 2

Scheme code : S033 - Drillcore/Rock; Dry, Jaw crush, Fine pulv, Ring

Sample preparation. Drillcore, Rock samples; Dry,
Jaw crush, Fine pulverise, Ringmill, <3.5kg

Scheme code : X401 - Pressed powder, XRF, Trace determination

Pressed powder, XRF, Trace determination.

Scheme code : G104 - Total acid digest, Geochemical samples

Total acid digest, (HF,HCl,HNO3,HClO4),
Geochemical samples.

Scheme code : I104 - ICP-AES analysis, Base metals

ICP-AES analysis of sample after G104 digest.,
Base metals.

Scheme code : G151 - Sodium peroxide fusion, Geochemical samples

Sodium peroxide fusion, (Na2O2), Geochemical
samples.

Scheme code : I151 - ICP-AES analysis, Base metals

ICP-AES analysis of sample after G151 fusion, Base
metals.



Our reference : BU014816
 Your reference : J.G.Purvis
 Project code : Ex BU014411 & BU014778
 Date received : 25/06/98
 Date reported : 10/07/98

Analabs Pty. Ltd.
 ACN 004 591 664
 14 Thirkell St, Burnie
 Tasmania 7320
 Telephone : (004) 31 6837
 Facsimile : (004) 31 8890

Gerald Purvis

Allstate Explorations NL
 PO Box 58
 Beaconsfield

TAS 7270

Number of pages of results : 4
 Number of Samples : 10
 First Sample : 661250
 Last Sample : 661358

Invoice to:
 Gerald Purvis

Allstate Explorations NL
 PO Box 58
 Beaconsfield

TAS 7270

Electronic Data Transmission :
 Modem / /
 Facsimile / /
 Disk Report / /

Preliminary Reports :
 09/07/98 Report

Results to:

Results to:

Remarks :

Authorised by
 On behalf of:

Richard Newman
 Laboratory Manager

The results in the following analytical report pertain to the samples provided to this laboratory
 for preparation and/or analysis as requested by the client.



ANALYSIS DESCRIPTION

Job number : BU014816 Order number : J.G.Purvis

 Scheme code : X401 - Pressed powder, XRF, Trace determination

 Pressed powder, XRF, Trace determination.

 Scheme code : G104 - Total acid digest, Geochemical samples

 Total acid digest. (HF,HCl,HNO3,HClO4),
 Geochemical samples.

 Scheme code : I104 - ICP-AES analysis, Base metals

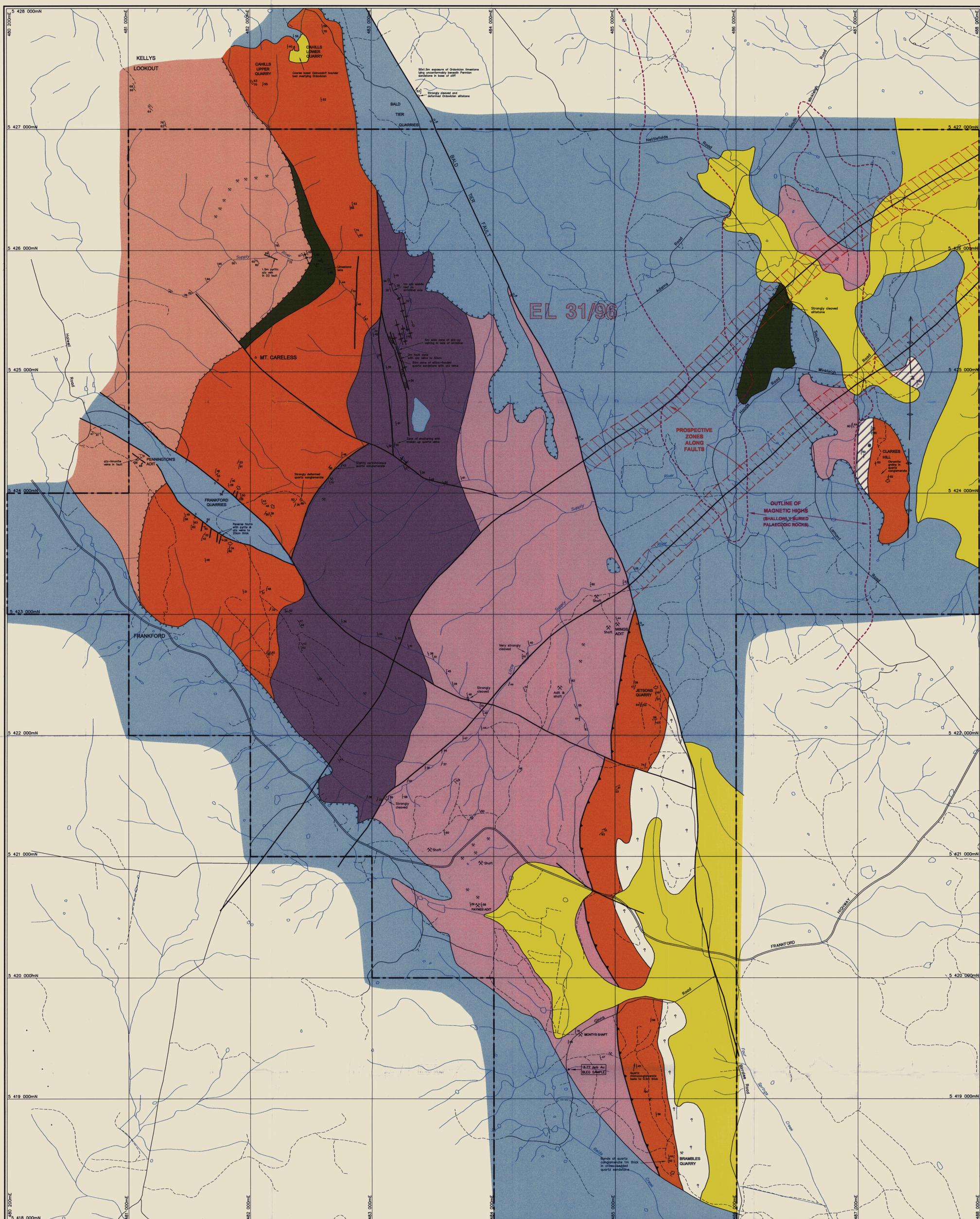
 ICP-AES analysis of sample after G104 digest.,
 Base metals.

 Scheme code : G151 - Sodium peroxide fusion, Geochemical samples

 Sodium peroxide fusion, (Na2O2), Geochemical
 samples.

 Scheme code : I151 - ICP-AES analysis, Base metals

 ICP-AES analysis of sample after G151 fusion, Base
 metals.



LEGEND

- | | | | |
|--|---|--|---|
| <p>TERTIARY RECENT</p> <ul style="list-style-type: none"> Clay, sands and gravels <p>PERMIAN</p> <ul style="list-style-type: none"> Fossiliferous mudstone and sandstone with basal conglomerate <p>ORDOVICIAN</p> <ul style="list-style-type: none"> LITTLE SUPPLY SILTSTONE
Cleaved khaki siltstone SUPPLY RIVER SANDSTONE
Purplish hematized quartz-mica sandstone FRANKFORD SILICICLASTICS
Pink hematized quartz conglomerate and sandstone | <p>CAMBRIAN ?</p> <ul style="list-style-type: none"> BLYTHS CREEK FORMATION ?
Cleaved quartz-mica sandstone/siltstone and minor limestone <p>PROTEROZOIC</p> <ul style="list-style-type: none"> BADGER HEAD GROUP
Sandy/silty quartz-mica phyllite and black shale | <ul style="list-style-type: none"> Fault Thrust Anticlinal fold axis Synclinal fold axis Geological contact Unconformity | <ul style="list-style-type: none"> Bedding Cleavage Bedding and cleavage coincident Sedimentary facing Major prospect working (shafts, adits) Minor prospect working (pits, trenches) Fossil locality |
|--|---|--|---|

Drawn from field mapping by J. G. Purvis and G. Atkinson (1998), and A. B. Gulline, A. P. Brown and L. H. Noyel (1973)

532100
98-4216

ANNUAL REPORT - EL 31/96
ALLSTATE EXPL. - J.G. PURVIS

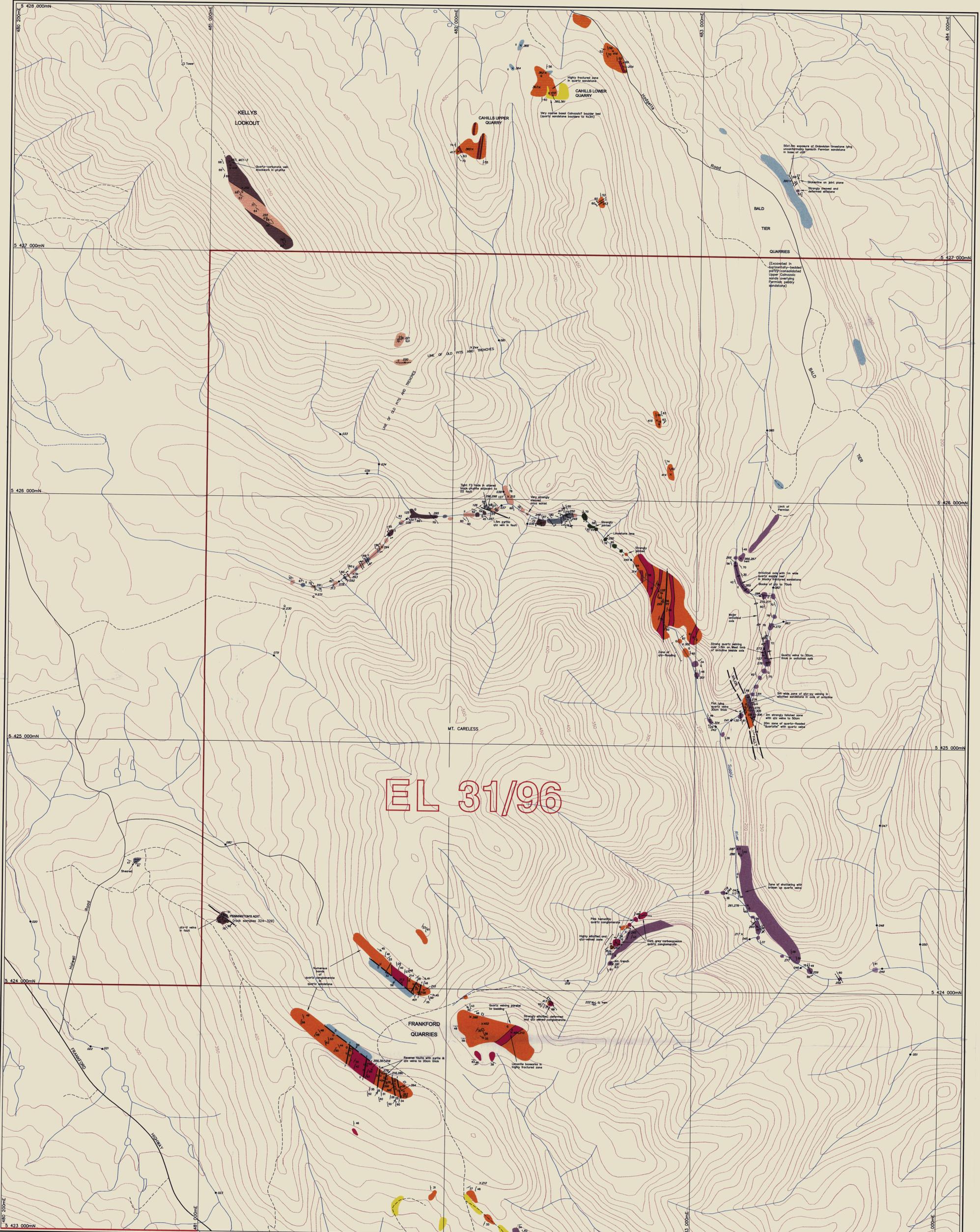
ALLSTATE EXPLORATIONS

COMPILED: JGP/DA
DATE: September 1998
DRAWN: G.M.B.
REVISIONS:
FILE: MC 001 Intep
DRAWING No.:

**EL 31/96 - MT. CARELESS
INTERPRETED
GEOLOGY**

SCALE 1:10,000 0 200 400
FIG. No. 2

EL 31/96



LEGEND

UPPER CAMBRIAN

- Locally-derived clay, sand and gravel, cemented in places. Base coarse boulder bed on Bald Tier.
- Mudstone and sandstone, with occasional pebbles. Commonly fossiliferous.

OROVICHIAN

- FRANKFORD SUBOLIGASTIC QUARTZ SANDSTONE**: Pale red to dark grey, very hard, fine to coarse grained quartz sandstone. Variably hematized and silicified. Occasional quartz pebbles.
- QUARTZ CONGLOMERATE**: Fine to dark grey, quartz pebble conglomerate and micaceous sandstone. Clasts to 16cm, typically $2-5\text{cm}$. Variably hematized and silicified. Generally interbedded with quartz sandstone above.
- BLITTS CREEK FORMATION 1**: Grey, cleaved, quartz-mica sandstone and siltstone. Minor dark grey sandy limestone.

PROTEROZOIC

- LITTLE SUPPLY SILTSTONE**: Khaki-grey, micaceous silt-rich siltstone. Minor interbeds of fine quartzite sandstone and grey micaceous shale. Weakly cleaved, with characteristic small leached, imbricate lenses possibly due to bioturbation.
- SUPPLY RIVER SANDSTONE**: Purple-brown to pale grey, fine grained quartz-mica sandstone. Characterized by hematite silicification, massive uniform nature and lack of cleavage. Clashes Hill quartz-mica sandstone (diagonal hatching).

- Outcrop
- Bedding
- Overtuned bedding
- Cleavage
- Bedding and cleavage coincident
- Bedding/cleavage intersection lineation
- Joint
- Sedimentary facies
- Plunge of folding

- Geological contact
- Unconformity
- Quartz vein showing strike and dip
- Quartz vein, strike and dip not measured
- Fault with dip and movement sense, where known
- Shear zone with dip
- Deformed zone: very strong cleavage, folding or shearing
- Fossil locality

- Anticlinal fold axis
- Synclinal fold axis
- BLEG stream sediment sample (Hart and Large, 1997)
- 80 mesh stream sediment sample
- x 264 Rock sample

NOTE: All samples prefixed 661

Samples taken by Hart and Large 1997 include: 661001-116, 661201-247, 661251-257

Samples taken by Purvis and Atkinson in 1988 include: 661117-131, 661248-250, 661258-428

532101

1:5000 SHEET LAYOUT

98-4216

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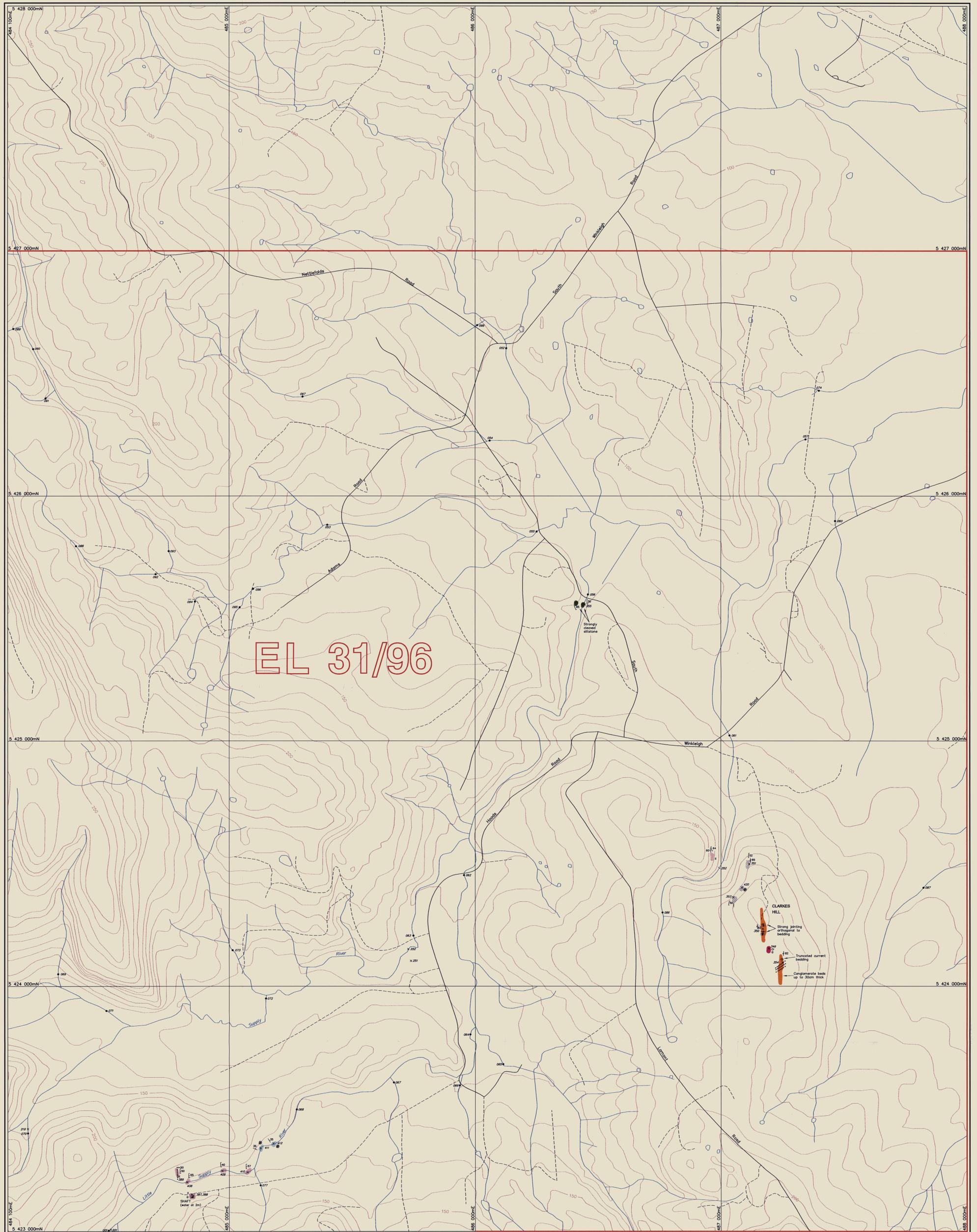
COMPILED: JGP/DA
DATE: September 1988
DRAWN: G.M.B.
REVISIONS:

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GEOLOGY (FACT)

NORTH WEST SHEET

FILE: NW Geol Fact
DRAWING No. SCALE 1:5000 FIG. No. 3



EL 31/96

CLARKES HILL
 Strong jointing orthogonal to bedding
 Truncated current bedding
 Conglomerate beds up to 30cm thick

LEGEND

UPPER CAMBRIAN

Locally-derived clay, sand and gravel, cemented in places. Base coarse boulder bed on Bald Tier.

PERMIAN

Mudstone and sandstone, with occasional pebbles. Commonly fossiliferous.

ORDOVICIAN

LITTLE SUPPLY SILTSTONE
 Khaki-grey, micaceous lithic-rich siltstone. Minor interbeds of fine quartzite sandstone and grey micaceous shale. Weakly cleaved, with characteristic small leathery limonite lenses possibly due to bioturbation.

SUPPLY RIVER SANDSTONE
 Purple-brown to pale grey, fine grained quartz-mica sandstone. Characterized by hematite coloration, massive uniform nature and lack of cleavage. Clarke Hill quartz-mica sandstone (stippled).

ORDOVICIAN

FRANKFORD SUBOLIGOCES
QUARTZ SANDSTONE
 Fine red to dark grey, very hard, fine to coarse grained quartz sandstone. Varying hemolized and silicified. Occasional quartz pebbles.

QUARTZ CONGLOMERATE
 Pink to dark grey, quartz pebble conglomerate and microconglomerate. Clasts to 15cm, typically <3cm. Varying hemolized and silicified. Generally interbedded with quartz sandstone above.

CAMBRICAN?
BLYNES CREEK FORMATION?
 Grey, cleaved, quartz-mica sandstone and siltstone. Minor dark grey sandy limestone.

PROTEROZOIC
 Dark grey, phyllitic, quartz-mica sandstone (stippled), phyllitic siltstone (dotted) and grey-black partly carbonaceous/graphitic shale (cross-hatched).

Outcrop

Bedding

Overturned bedding

Cleavage

Bedding and cleavage coincident

Bedding/Cleavage intersection lineation

Joint

Sedimentary facies

Plunge of folding

Geological contact

Unconformity

Quartz vein showing strike and dip

Quartz vein strike and dip not measured

Fault with dip and movement sense, where known

Shear zone with dip

Deformed zone, very strong cleavage, folding or shearing

Joint

Fossil locality

Anticlinal fold axis

Synclinal fold axis

lim Limonite/ironstone

hem Hematite/hematitic

ser Sericitized

cr Chromite grains

Shaft with dump and present depth shown

ADT

Pit, trench, with dump

BLES stream sediment sample (Hart and Large, 1997)

-50 mesh stream sediment sample

x 264 Rock sample

NOTE: All samples prefixed 661

Samples taken by Hart and Large 1997 include: 661001-116, 661201-247, 661251-257

Samples taken by Purvis and Alchison in 1998 include: 661111-131, 661248-250, 661258-420

Boundary of EL 31/96

98-4216

1:5000 SHEET LAYOUT 532102

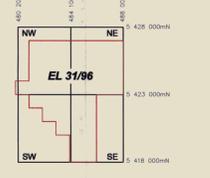
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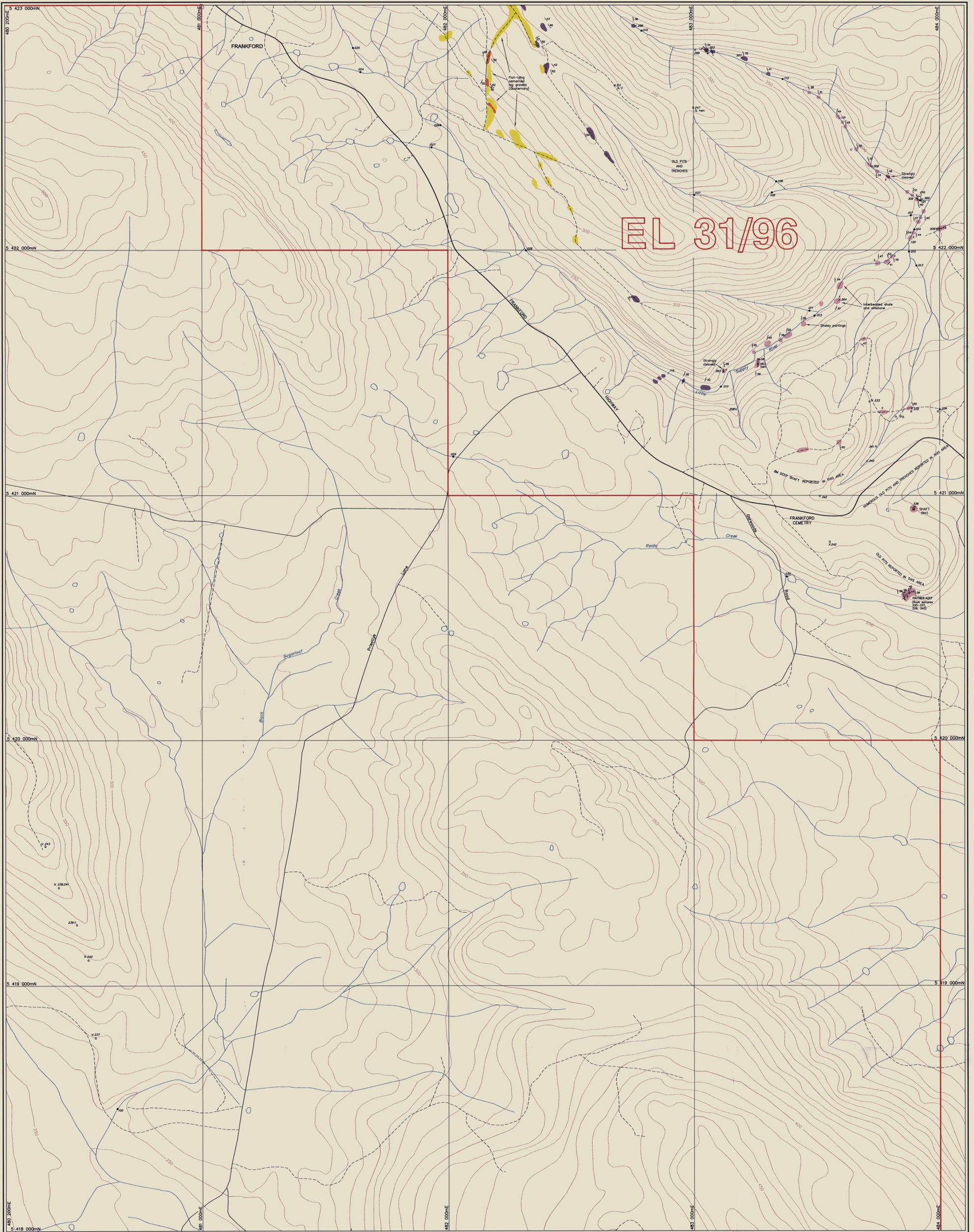
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EL 31/96 - MT. CARELESS GEOLOGY (FACT) NORTH EAST SHEET

FILE: NE Coal Field
 DRAWING No. SCALE 1:5000 FIG. No. 4





LEGEND

UPPER CAMBRIAN
 Locally-derived clay, sand and gravel, cemented in places. Base coarse boulder bed on Bold Tier.

PERMIAN
 Mudstone and sandstone, with occasional pebbles. Commonly fossiliferous.

ORDOVICIAN
LITTLE SUPPLY SILTSTONE
 Khaki-grey, micaceous lithic-rich siltstone. Minor interbeds of fine quartzite sandstone and grey micaceous shale. Weedly cleaved, with characteristic small leached limonite lenses possibly due to bioturbation.

SUPPLY RIVER SANDSTONE
 Purple-brown to pale grey, fine grained quartz-mica sandstone. Characterized by hematitic coloration, massive uniform nature and lack of cleavage. Clusters of quartz-mica sandstone.

FRANKFORD BLEDIANITES
QUARTZ SANDSTONE
 Fine red to dark grey, very hard, fine to coarse grained quartz sandstone. Varies from hemolized and silicified. Occasional quartz pebbles.

QUARTZ CONGLOMERATE
 Pink to dark grey, quartz pebble conglomerate and microconglomerate. Clasts to 15cm, typically <1cm. Varies from hemolized and silicified. Generally interbedded with quartz sandstone above.

ELYNS CREEK FORMATION ?
 Grey, cleaved, quartz-mica sandstone and siltstone. Minor dark grey sandy limestone.

PROTEROZOIC
 Dark grey, phyllitic, quartz-mica sandstone (■), phyllitic siltstone (■) and grey-black partly carbonaceous/graphitic shale (■).

Geological contact
 Unconformity

Anticlinal fold axis
 Synclinal fold axis

BLEG stream sediment sample
 (Port and Large, 1997)

-80 mesh stream sediment sample

x 264 Rock sample

NOTE: All samples prefixed 661
 Samples taken by Hart and Large 1997 include: 661001-116, 661201-247, 661251-257
 Samples taken by Purvis and Atkinson in 1998 include: 66111-131, 661246-250, 661256-420

Outcrop

Bedding

Overtuned bedding

Cleavage

Bedding and cleavage coincident

Bedding/cleavage intersection lineation

Joint

Sedimentary facies

Plunge of folding

Geological contact

Quartz with showing strike and dip

Quartz with strike and dip not measured

Fault with dip and movement sense, where known

Shear zone with dip

Deformed zone, very strong cleavage, folding or shearing

Fossil locality

Limonite/ironite

Limonite seep

Hematite/hemalitic

Sericitized

Chromite grains

Shaft with dump and present depth shown

Adit

Pit, trench, with dump

Boundary of EL 31/96



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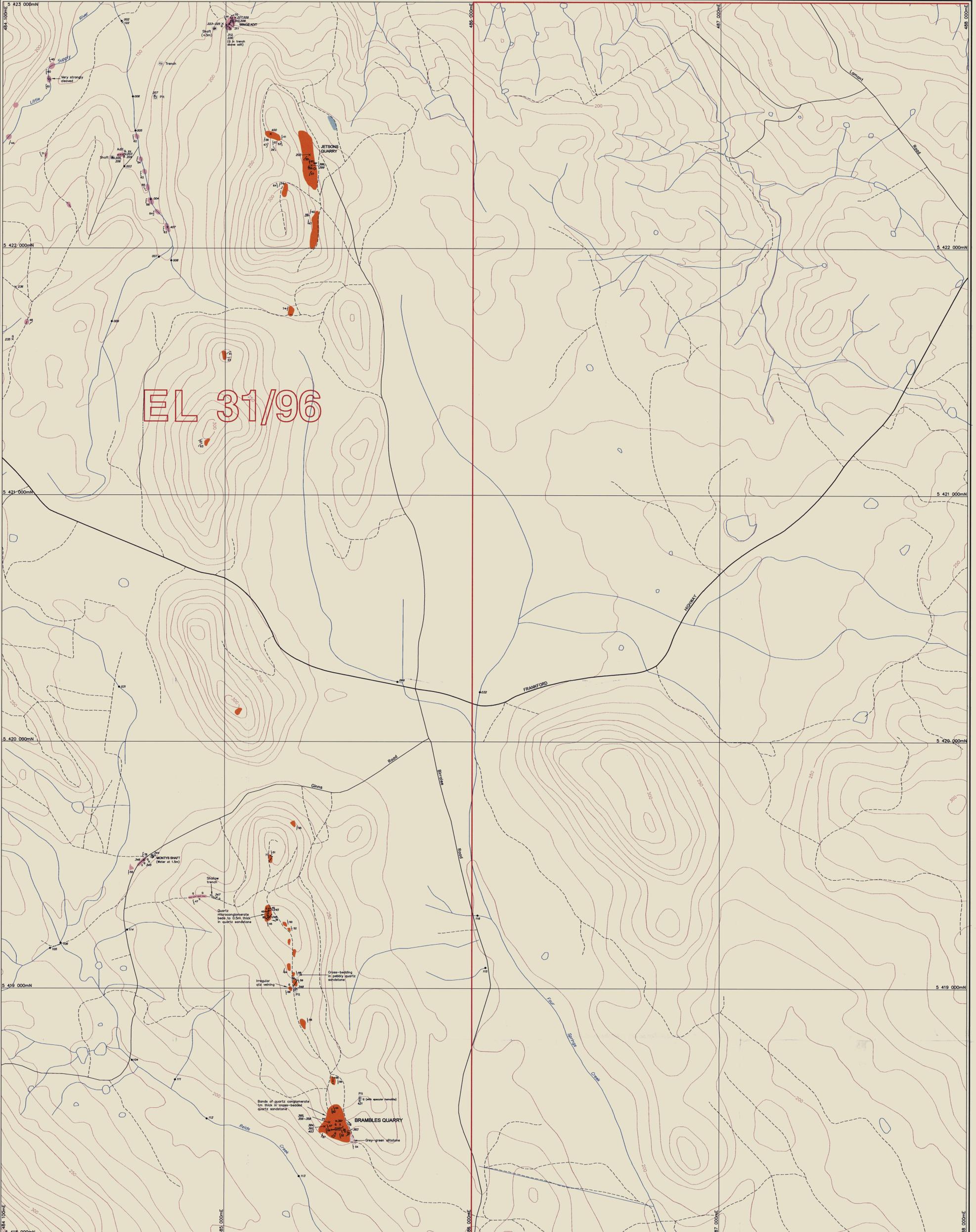
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GEOLOGY (FACT)

SOUTH WEST SHEET

COMPLETED: JSP / DA
 DATE: September 1998
 DRAWN: G.M.B.
 REVISIONS:

FILE: SW Geol Fact
 DRAWING No. SCALE 1:5000 FIG No. 5



EL 31/96

LEGEND

UPPER CAMBRIAN
Locally-derived clay, sand and gravel, cemented in places. Base coarse boulder bed on Bald Top.

PERMIAN
Mudstone and sandstone, with occasional pebbles. Commonly fossiliferous.

ORDOVICIAN
LITTLE SUPPLY SILTSTONE
Khaki-grey, micaceous siltstone. Minor interbeds of fine quartzite sandstone and grey micaceous shale. Weakly cleaved, with characteristic small leached limonite lenses possibly due to dissolution.

SUPPLY RIVER SANDSTONE
Purple-brown to pale grey, fine grained quartz-mica sandstone. Characterized by hematitic calcification, massive uniform nature and lack of cleavage. Occasional thin quartz-mica sandstone (// // //)

FRANKFORD BIOClastic QUARTZ SANDSTONE
Fine red to dark grey, very hard, fine to coarse grained quartz sandstone. Variably hematitized and silicified. Occasional quartz pebbles.

QUARTZ CONGLOMERATE
Pink to dark grey, quartz pebble conglomerate and microp conglomerate. Clasts to 15cm, locally 30cm. Variably hematitized and silicified. Generally interbedded with quartz sandstone above.

CAMBRIAN ?
SLYNS CREEK FORMATION ?
Grey, cleaved, quartz-mica sandstone and siltstone. Minor dark grey sandy limestone.

PROTEROZOIC
Dark grey, phyllitic, quartz-mica sandstone (// // //), phyllitic siltstone (// // //) and grey-black party carbonaceous/graphitic shale (// // //).

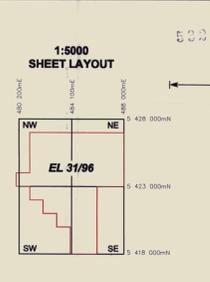
Outcrop
Bedding
Overturned bedding
Cleavage
Bedding and cleavage coincident
Bedding/cleavage intersection lineation
Joint
Sedimentary facies
Plunge of folding

Geological contact
Unconformity
Quartz vein showing strike and dip
Quartz vein strike and dip not measured
Fault with dip and movement sense, where known
Shear zone with dip
Deformed zone: very strong cleavage, folding or shearing
Joint
Pit, trench, with dump
Fossil locality

Anticlinal fold axis
Synclinal fold axis
Limonite/limonitic
Limonite seep
Hematite/hematitic
Sericitized
Chromite grains

BLED stream sediment sample (Hart and Large, 1997)
-50 mesh stream sediment sample
x 264 Rock sample

NOTE: All samples prefixed 661
Samples taken by Hart and Large 1997 include: 661001-116, 661201-247, 661251-257
Samples taken by Purvis and Alchison in 1998 include: 661111-13, 661248-256, 661258-420



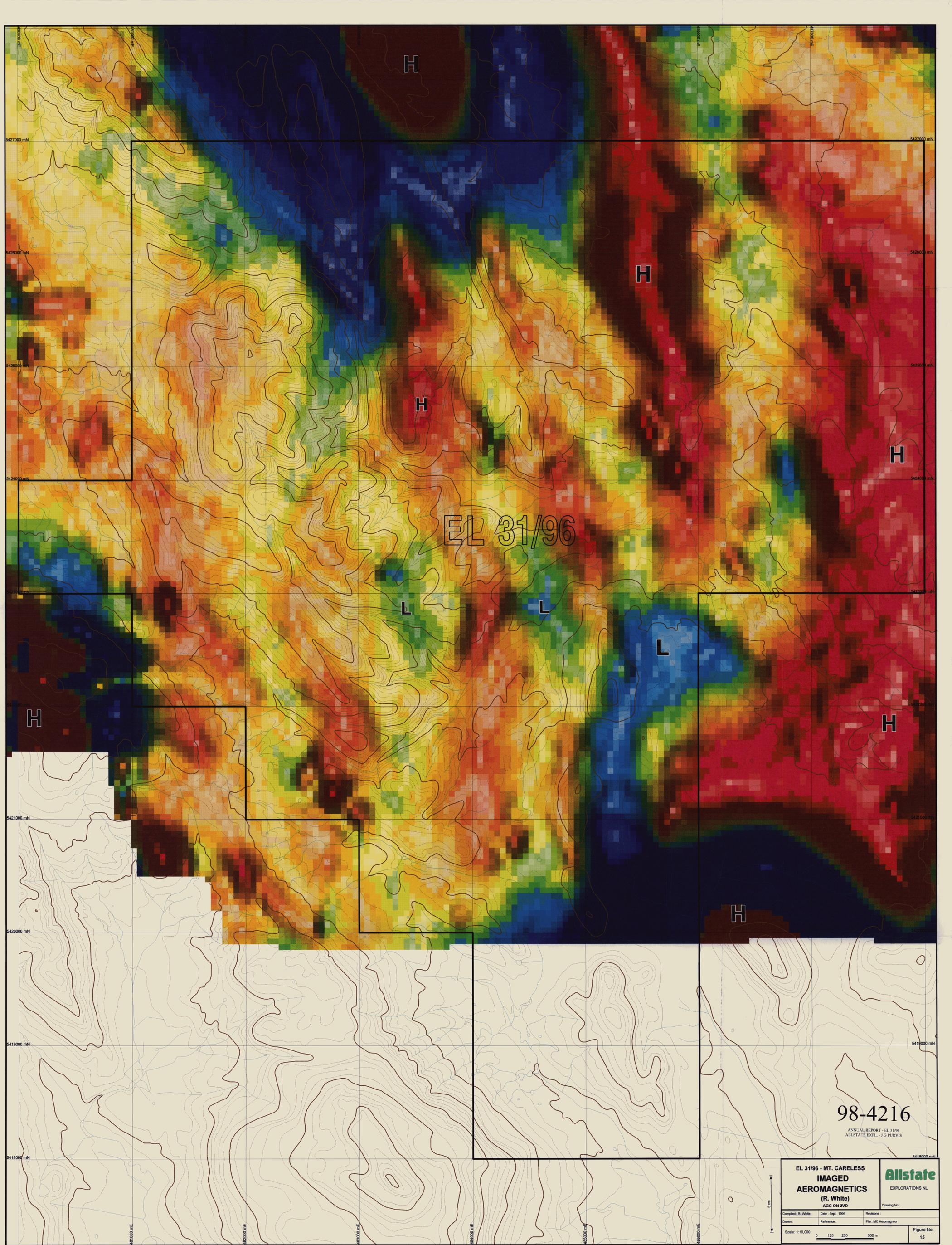
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ALLSTATE EXPLORATIONS

COMPILED: JSP/DA
DATE: September 1998
DRAWN: G.M.B.
REVISIONS:

EL 31/96 - MT. CARELESS
GEOLOGY (FACT)
SOUTH EAST SHEET

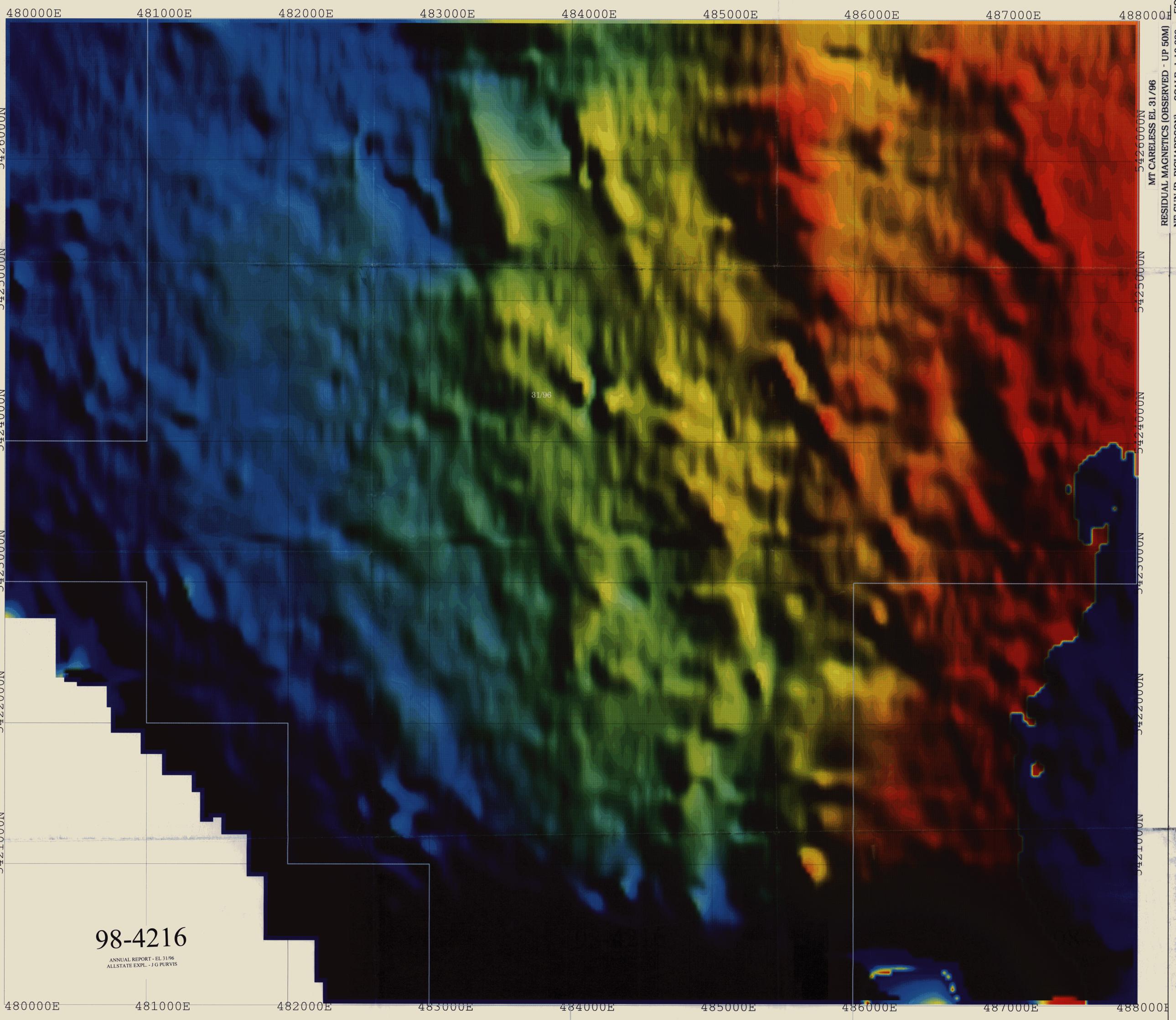
FILE: SE Coal Field
DRAWING No. SCALE 1:5000 0 100 200 300 400 500 600 700 800 900 1000
FIG. No. 6



EL 31/96

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EL 31/96 - MT. CARELESS		Allstate EXPLORATIONS NL
IMAGED AEROMAGNETICS (R. White) AGC ON 2VD		
Completed: R. White	Date: Sept., 1998	Revisions:
Drawn:	Reference:	File: MC Aeromag.wor
Scale: 1:10,000	0 125 250 500 m	
		Drawing No.:
		Figure No. 15



480000E

481000E

482000E

483000E

484000E

485000E

486000E

487000E

488000E

5426000N

5425000N

5424000N

5423000N

5422000N

5421000N

5426000N

5425000N

5424000N

5423000N

5422000N

5421000N

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Mt Careless Aeromagnetics NE Sun



FIG 16
SCALE 1:10,000
NE SUN [R. RICHARDSON]
RESIDUAL MAGNETICS (OBSERVED - UP 50M)
MT CARELESS EL. 31/96