MAR 19950013: LEGEND

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ASSESSMENT REPORT
PERMIT
9393030567

SUBMITTED BY TOM BRYANT
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SEPT. 6,1995

A REPORT FOR ASSESSMENT REQUIREMENTS
ALBERTA METALLIC MINERALS PERMIT 9393030567

These permits were staked based on the location of a macro diamond in surface drainage in the area.
The macro diamond was approximately 3/16" across and a dirty brown in colour.
The area was sampled for diamonds and diamond indicators in both drainage and till.
All samples were washed and screened and then, because of previous experience in the diamond search, were picked "as is".
Experience with diamond samples had previously exposed some problems. The standard use of tetrabromothane and magnetic separation was suitable for searching for monomineralic indicator minerals and diamonds but if we were actually proximal to a pipe the monomineralic remnants would be destroyed or eliminated in the processing of the sample.
Work done for Northside Resources had discovered polymineralic granulite fragments that had been missed in the standard processing because of their size and their specific gravity.
All of this led to a different picking protocol.
Samples were washed with a de-floculant solution to help break down clays and organics.
Samples were screened to several mesh sizes.
Plus 1/2"
Plus 1/4"
Minus1/4" to Plus 1/8"
Minus 1/8" plus 20 mesh tyler
Minus 20 mesh plus 30 mesh tyler
Minus 30 mesh plus 50
Minus 50 plus 80
Minus 80
The minus 80 was reserved as too fine for picking without some extended effort.
The rest of the fractions were examined to determine the size at which most of the grains were monomineralic.
in the largest majority of the samples the grains were monomineralic at the 50 to 80 mesh fraction with many being monomineralic in the 30 to 50 mesh fraction.
The plus 30 mesh fraction was examined for complex polymineralic fragments of pipe while the minus 30 mesh was examined for indicator minerals.
The effort to pick monomineralic grains was worthwhile from the stand-point of rough reconnaissance but unfortunately there was no budget to have these grains Microprobed. As no diamonds were located in our examinations it is unlikely that there will be further work on these samples for some time.

ALLUVIAL DIAMONDS

Because the macro diamond that was located in the area was found in association with pre-glacial channel there was some thought given to the possibility of diamond having been liberated much further away and the indicators as well as the diamonds being homogenized and diluted with the general channel materials. This would mean that the chances of locating a diamond or an indicator mineral would be diminished the further from source one was.

With this in mind we determined that if there was a possibility of what were essentially alluvial diamonds sourced in the pre-glacial channel a means of processing larger samples was needed.

The standard field sample was in the neighborhood of 20 kg. but this sample size was felt to be much too small.

As our target was alluvial source diamond we had to assume that whatever diamonds we might encounter would be liberated and relatively clean. We examined several approaches to field processing including jigs and vibrating grease tables. While both are accepted in the diamond recovery field at a mine scale the scaling down of the systems was more than we wanted to put into the project at this time. Our sample sizes were going to be in the 200 kg. raw size which put us in a class too small to downgrade most systems to.

In the end we merged two systems we were presently using.

Samples were screened to 20 mesh minus and this minus product was processed on a lab scale Wilfley Vibrating Table. The cons from this process were first examined for obvious indicators after having been sieved to minus 30 plus 50 and minus 50 plus 80 with the minus 80 being reserved as too fine for picking.

After the initial examination each fraction was taken to a "grease pan" to recover any diamonds that would stick to grease.

Fractions larger than 20 mesh were sieved to Minus 8 mesh plus 20, minus 1/4" plus 8 mesh and minus 1/2" plus 1/4".

These fractions were too course to table and were therefore treated as distinct fractions.

The Minus 8 mesh plus 20 was grease panned directly while the minus 1/4" plus 1/8" mesh and the minus 1/2" plus 1/4" were each first hand jigged using concave screens available through Robin Day as part of a field processing kit that he has fabricated for the industry. The jigged concentrate which collected in the bottom of the screens was examined for diamonds and /or larger indicator minerals.

THE GREASE PAN

The grease pan principle was developed by Tom Bryant as a quick way of processing larger field samples for diamonds. He makes no claim to inventing the process but has not seen it in any of his reference material.
The process essentially duplicates a vibrating grease table that has been used for a very long time in diamond processing.
The bottom of a large plastic gold pan is coated with a grease that diamonds will stick to. Various grease mixes have been tested with good results. Vaseline was finally chosen as the grease of choice because of its ready availably. The first attempts at grease panning were tried with a grease / paraffin mix that was designed for commercial grease table use but the mix was very difficult to break down to get the diamonds. Since the paraffin was the culprit and since the paraffin was only there to help keep the grease from being abraded away in a commercial circuit the paraffin was dropped and straight Vaseline was used from then on. The grease pan is a relatively gentle process as well as being operator active with frequent scraping and replacement of the grease. There was little chance of grease loss.
A sample to be grease panned is first sieved to a convenient size. The upper size would be around 1/8" and the lowest that was done in practice was 80 mesh. Each sieve size was first wetted and then put into the grease pan a tablespoonful at a time. The material was shaken gently back and forth for perhaps 30 seconds and then by dipping the pan into a tub of water the material that did not stick to the grease was washed out.
The operator would then do a quick examination of the pan under strong white light looking for mineral grains caught in the grease. With the low incidence of such grains it was practical to merely scrape out such grains and repeat the process. Periodically the entire grease coating was scraped out and a new layer put in.
The collected mineral grains along with the grease scrapings were put into a screen that represented the sieve size used to produce the fraction.[ie. minus 8 mesh plus 20 would use a 20 mesh sieve.]
The sieve was then submersed in a pot of boiling water so that the sides of the sieve were above the water but all materials in the sieve were under water. This kept the materials that were liberated from the grease trapped in the sieve.
After a period of boiling the sieve was removed. Once the water cooled the Vaseline that was melted out of the sieve floated to the top of the water and was recovered. Since there was always a worry of sample contamination the Vaseline was discarded.
Even though the boiling was successful in removing almost all of the grease from the mineral grains there was still a surface coating that was left that caused the grains to stick to one another. This coating also changed the surface appearance of the grains making identification difficult.

There was some attempt made to use solvents to remove this coating but in the end the easiest method was to steam clean the grains using a lab scale steamer that is popular in the manufacturing jewelry trade. This method meant that the grains were left in the sieve for the entire cleaning process. And the chances for loss or contamination were reduced.

CONCLUSIONS

Because of the lack of budget for Microprobe work the picked mineral gains can only give us an idea of diamond potential.
Based on picking and microprobe of similar appearing grains it would appear that there are minerals consistent with those found in the west of Edmonton towards the Pembina River. Because these grains were located in ancient channel gravels and because there were no larger polymineralic fragments of potential pipe material there is a strong possibility that the grains have been transported from much further west. The lack of "alluvial" diamonds from that testing would argue against a proximal source in the ancient channel drainage as there was so much more country rock diluting the hit potential. The final conclusion would be that while there was no direct evidence that a proximal source for diamonds is located in the area the location of alluvial diamonds in the present drainage suggests a potential for further study. The diamonds that are found as discrete and individual anomalous grains may be studied to give a better idea of their original source. This may mean more clues for a search up drainage on the pre-glacial channels.

SAMPLE RESULTS

D1	No diamond - Garnet some purple red but all thought to be metamorphic.
D2	No diamond - Garnet from metamorphic sources
D3	No diamond - Metamorphic garnet - two pieces of garnet schist in the plus two inch fraction - one 2.8 inches and the other 3.7 inches.
D4	No diamond - two grains in the plus 80 were picked as they had high refractive index identified as zircon and kept as type sample for further picking - Metamorphic garnet
D5	No diamond - zircon in the plus 80 and plus 50 minus 30 - metamorphic garnet.
D6	No diamond - zircon and metamorphic garnet - green mineral thought to be diopside in the 50 mesh size.
D7	No diamond - zircon in the 50 mesh size as well as metamorphic garnet some up to 1/4 inch in size.
D8	No diamond - three grains of very bright quartz were picked because of high refractive index - also grains of barite to 1/8 inch in size - there may actually have been barite grains in previous samples but were not seen as curious by the picker - barite was thought to be of sedimentary origin and were ignored as pickable grains in future samples - metamorphic garnet
D9	No diamond - metamorphic garnet to 30 mesh
D10	No garnet - metamorphic garnet to 30 mesh
D11	No diamond - metamorphic garnet to 30 mesh
D12	No diamond - metamorphic garnet to 30 mesh
D13	No diamond - diopside? in the 30 mesh size
D14	No diamond - metamorphic garnet to 50 mesh one garnet grain to 30 mesh

D15	No diamond - metamorphic garnet to 30 mesh
D16	No diamond - metamorphic garnet to 30 mesh
D17	No diamond - metamorphic garnet to 50 mesh
D18	No diamond
D19	No diamond - metamorphic garnet minus 50 mesh plus 80
D20	No diamond - metamorphic garnet to 30 mesh one garnet grain 1/4 inch in size
D21	No diamond - zircon in minus 50 mesh plus 80 - metamorphic garnet to 50 mesh
D22	No diamond - metamorphic garnet to 30 mesh - green black rock fragments to i/4 inch identified as schist.
D23	No diamond - metamorphic garnet to 30 mesh one plus 30 mesh grain picked because of dark colored inclusion making it appear dark red - grain measured approximately 1/8 inch.
D24	No diamond - metamorphic garnet to 30 mesh.
BD1	No diamond - placer gold grains to 10 mesh - metamorphic garnet - diopside? less than 30 mesh - abundant coal found in sample during preparation
BD2	No diamond - placer gold grains to 30 mesh - metamorphic garnet - diopside? less than 30 mesh - coal as in BD1
BD3	No diamond - this sample from glacial till reworked by drainage - very few gold grains all less than 30 mesh - same garnets as seen in smaller samples

19950013

EXPENDITURES FOR ASSESSMENT

Wages:	27 man days at $300 per day = $8100.00
Mileage:	$1250.00
Equipment Rental:	$300.00
Lab costs:	$600.00
Total:	$10250.00

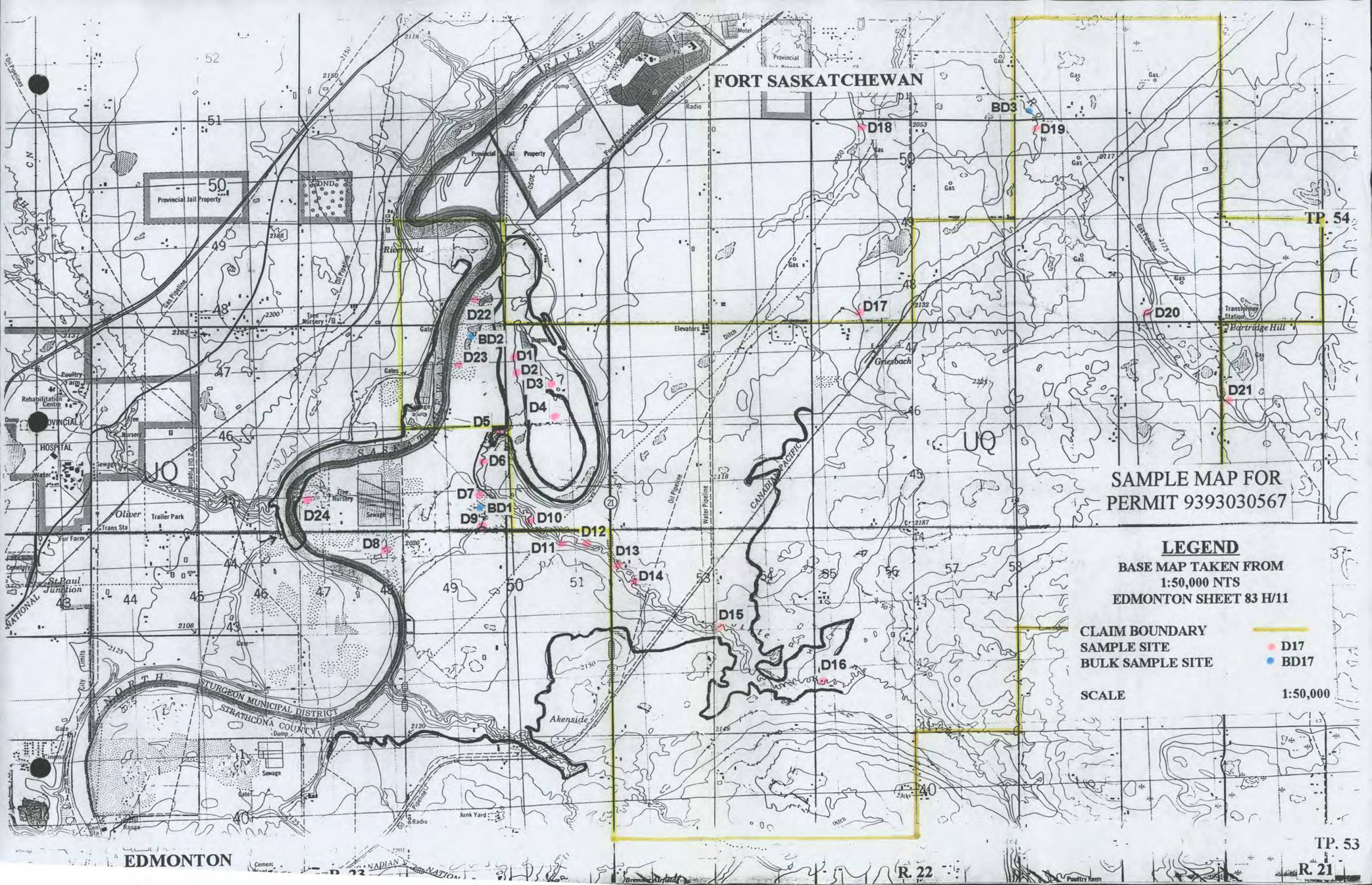
At $5.00 per hectare this amount covers the cost of assessment for 2050 hectares.
Please apply this amount to the following areas.

Twp. 53, R.22, W4, Sec. 19, 20, 21, 27, 30, 34, 35
Twp. 56, R.21, W4, Sec. 25

Yours Truly

[redacted]

Tom Bryant
Professional Prospector


FORT SASKATCHEWAN
BD3
D18
D19
TP. 54
D17
D20
D21
D22
BD2
D23
D1
D2
D3
D4
D5
D6
D7
BD1
D9
D10
D12
D11
D13
D14
D15
D16
D24
D8
SAMPLE MAP FOR
PERMIT 9393030567
LEGEND
BASE MAP TAKEN FROM
1:50,000 NTS
EDMONTON SHEET 83 H/11
CLAIM BOUNDARY
SAMPLE SITE
D17
BULK SAMPLE SITE
BD17
SCALE
1:50,000
EDMONTON
TP. 53
R. 22
R. 21