

MAR 20070024: HAMMERSTONE SOUTH

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BIRCH MOUNTAIN RESOURCES LTD.

**ASSESSMENT REPORT:
Permit Grouping August 31, 2007**

**Hammerstone South
Metallic and Industrial Minerals Permits
Northeastern Alberta**

Metallic & Industrial Minerals
Permit Nos. 9307010948,
9307010949 and 9307010950

G. F. Kozdial
K. M. Arden-Maki

Birch Mountain Resources Ltd.
Suite 250, 300 - 6th Ave S.W.
Calgary, Alberta
T2P 3H7



PART B
TECHNICAL INFORMATION



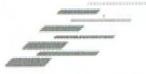
Table of Contents

List of Figures & Maps	ii
List of Appendices – Part C	iii
Summary	1
1.0 Introduction	3
1.1 Previous Work.....	3
2.0 Location and Access	4
3.0 Field Mapping Program Nov. 2006	6
3.1 Summary.....	6
3.2 Work Performed.....	6
3.3 Results	7
3.4 Conclusions	7
4.0 References Cited.....	9



List of Figures & Tables

Table 1. Mineral Assessment Actual Expenditure Breakdown by Type of Work for Hammerstone South Assessment Report, August 31, 2007.	2
Figure 1. Hammerstone South Permit Group.....	4
Figure 2. Hammerstone South Subcrop Geology	7



List of Appendices – Part C

- A. Field Mapping Program Nov. 2006
 - A.1 Station Location & Traverse Map
 - A.2 Station Descriptions

- B. Statements of Qualifications



SUMMARY

This assessment report documents the mineral exploration work conducted on the Hammerstone South permit group, owned by Birch Mountain Resources Ltd., Calgary, Alberta, for the period November 2006 to August 2007. Work done during this period comprised a literature review, air photo analysis and short field program in an area prospective for industrial minerals. Limestone outcrops were documented similar to limestones that occur to the north within Birch Mountain's active quarry, the Muskeg Valley Quarry, and the Hammerstone project.

A total of \$12,246.72 is claimed for expenditures on the permits included within the Hammerstone South permit group (Table 1).

Table 1. Mineral Assessment Actual Expenditure Breakdown by Type of Work for Hammerstone South Assessment Report, August 31, 2007.

Project Name: Hammerstone South

Expenditure Period (Month/Year) From: November, 2006

To: August 2007

		<u>AMOUNT</u>
1. Prospecting		<u>\$0.00</u>
2. Geological Mapping & Petrography		<u>\$11,133.38</u>
3. Geophysical Surveys		
a. Airborne		<u>\$0.00</u>
b. Ground		<u>\$0.00</u>
4. Geochemical Surveys		<u>\$0.00</u>
5. Trenching and Stripping		<u>\$0.00</u>
6. Drilling		<u>\$0.00</u>
7. Assaying & whole rock analysis		<u>\$0.00</u>
8. Other Work: _____		<u>\$0.00</u>
	SUBTOTAL	<u>\$11,133.38</u>
9. Administration (up to 10% of subtotal)		<u>\$1,113.34</u>
	TOTAL	<u>\$12,246.72</u>
<u>Kyla M. Arden-Maki</u>		<u>Sept 27, 2007</u>
SUBMITTED BY (Print Name)		DATE

1.0 INTRODUCTION

This document is organized into three main parts: Part A which includes the permit group information, detailed expenditure statement and expenditure allocations; Part B which describes the exploration activities conducted on the permit group; and Part C, which includes all relevant supporting data, including maps and station locations as an appendix.

In November, 2006, the land comprising the Hammerstone South permits was placed under a 30 day pending notification with the land open for staking of the metallic and industrial minerals rights in December, 2006. As this area is to the south of Birch Mountain's operating limestone quarry, the Muskeg Valley Quarry, and just beyond the boundaries of the Hammerstone Project, currently under EIA review, Birch Mountain conducted a literature review and air photo study followed by a short field season to evaluate the potential of these lands for industrial minerals and possible future quarry expansion. As a result of the field investigations in November, 2006, Birch Mountain acquired the permits. The information included herein was collected during the investigations.

1.1 Previous Work

Previous exploration by Birch Mountain Resources Ltd. within the Athabasca permit and lease area, which surrounds the Hammerstone South area, is documented in previous assessment reports prepared and submitted by Birch Mountain in 1998, 2000, 2002, 2004 and 2006. Additional regional geological and exploration information can be found in Dufresne et al. (1994) and Olson et al. (1994). Information on limestone occurrences in the area is included in Norris (1963; 1973) and Cotterill and Hamilton (1995).

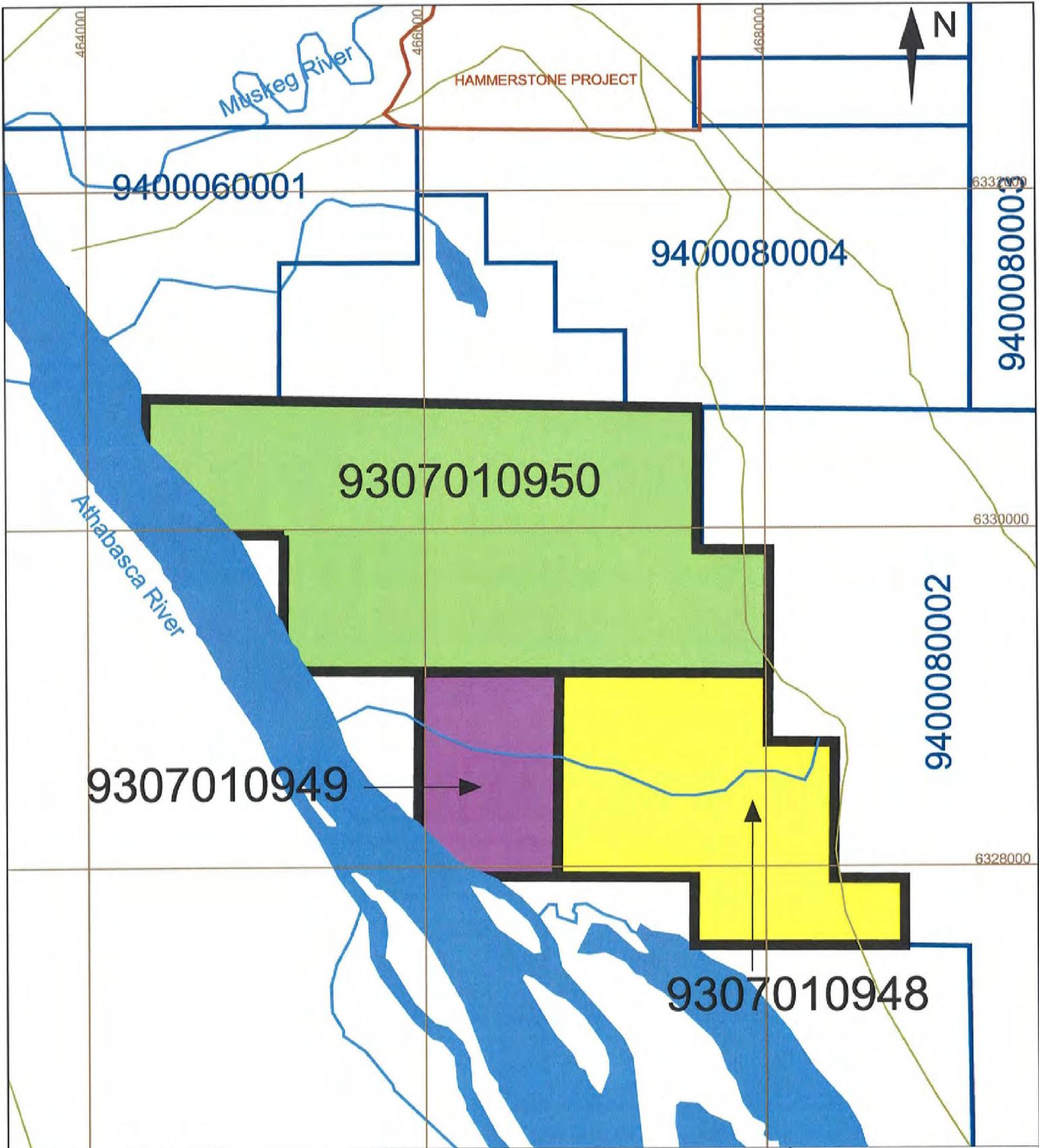


2.0 LOCATION AND ACCESS

The Hammerstone South permit group is part of Birch Mountain's Athabasca permit area, and is located in the Fort McKay region of northeastern Alberta (NTS 74D; Figure 1). The permits lie to the south of Birch Mountain's operating limestone quarry, the Muskeg Valley Quarry (MVQ) and the expanded Hammerstone Project, currently under review by the NRCB, EUB and Alberta Environment.

Although much of the area surrounding the Hammerstone South permits is underlain by the McMurray Formation oil sand deposits, in the vicinity of the permit grouping, Devonian Waterways Formation limestone occurs at or near the surface. This area was identified as having good potential for industrial minerals in 2004 during Hammerstone Project investigations, but as the land was removed from metallic and industrial mineral staking, no detailed work was done.

Road access to MVQ and Hammerstone is good along paved highways and gravel roads. Once beyond the current quarry boundaries, access to the Hammerstone South area is provided by a one hour long ATV ride along trails and cut lines. Traverses and mapping were conducted on foot. Accommodation, food, supplies and fuel were available in Fort McMurray while conducting exploration activities in the Hammerstone South area.



LEGEND

-  Lakes and Rivers
-  Roads
-  Birch Mountain Metallic and Industrial Mineral Permits
-  BMD Metallic and Industrial Mineral Leases



Figure 1. Hammerstone South Permit Group



August 22,07

KAM

3.0 FIELD MAPPING PROGRAM NOV. 2006

3.1 Summary

The Hammerstone South permit area was investigated for industrial mineral potential in November, 2006. In advance of field work, air photo interpretation and literature review were conducted to identify areas of possible limestone outcrops. A short field program was executed to ground-truth possible outcrops and to map the complete extent of any limestone encountered at surface. A geological subcrop map was produced.

3.2 Work Performed

The geological assessment of the Hammerstone South area began with a one day review of regional mapping of the area conducted by the Geological Survey of Canada in 1963 (Norris, 1963) by a Birch Mountain geologist. Results from this earlier work field mapping indicated that limestone was encountered at surface at a number of locations in the Hammerstone South area, both along the Athabasca River as well as up to several kilometres to the east of the river.

The next step in the industrial minerals evaluation of the Hammerstone South area involved examination of previously obtained air photos. The air photo topography was compared to the locations of the documented limestone outcrops. This study was conducted over 3 days by Birch Mountain geologists. The air photo work suggested that the documented limestone occurrences were associated with small hills and knolls. Additionally, the morphology of these limestone outcrops was similar that of limestone outcrops within the Hammerstone project area to the north as observed in previous air photo studies conducted by Birch Mountain geologists. This suggested that most of the hills and knolls observed in air photos in the Hammerstone South area could be limestone and that limestone outcrops covered most of the area.

Due to the positive results obtained from the air photo work and literature review, a short field program was executed to verify the above interpretations and to map the complete extent of any limestone encountered at surface. Field examination and mapping of the Hammerstone South area was conducted from November 13th to 16th, 2006 by two Birch Mountain geologists. Access to the field area was by ATV along cut lines and trails. Mapping traverses were conducted on foot and ran generally east-west with some lines parallel to the Athabasca River (Appendix A). At each knoll or hill, the 30 cm or more snow cover was brushed aside to allow lithological identification and description (Appendix A). No samples were collected.

3.3 Results

The four days field mapping confirmed that the knolls and small hills visible on air photos were all limestone. The limestone was a light tan, massive to slightly nodular limestone with very little shale component, ranging in exposed thickness from 1 m to 6 m (Appendix A). This limestone was identical to that encountered in outcrops within the MVQ and the Hammerstone Project to the north.

Exposures of limestone in inaccessible cliff faces along the Athabasca River work show a similar stratigraphy to that observed in drill core from MVQ and Hammerstone: the massive limestone at surface is underlain by approximately 10 m of grey interbedded limestone to shaley limestone with a fossiliferous competent tan limestone at the base of the cliffs. These observations confirm that the stratigraphy of the Hammerstone Project, namely the Moberly Member of the Waterways Formation, is continuous into the Hammerstone South area.

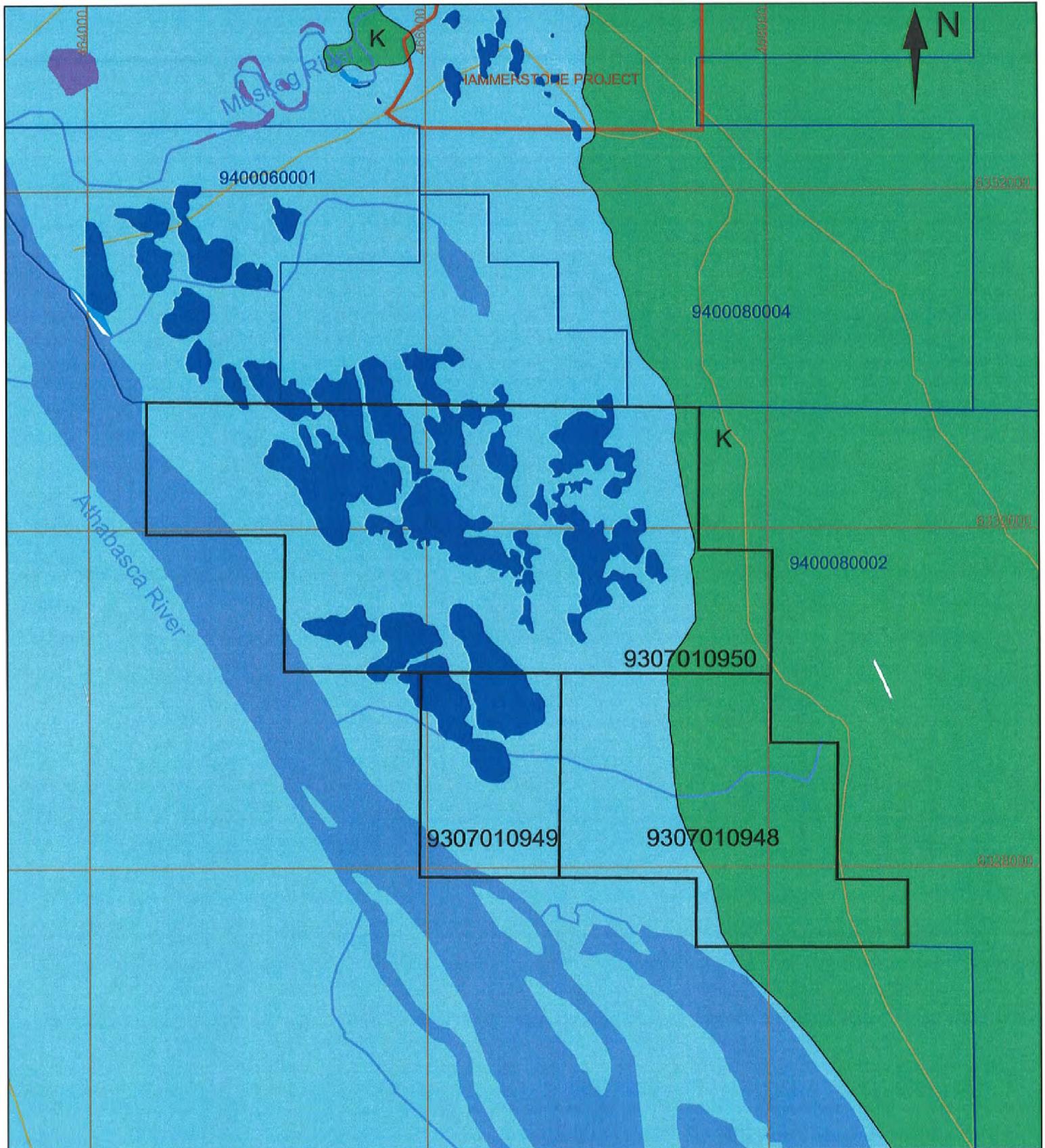
The steep hill on the east of the Hammerstone South permit area was interpreted to be Cretaceous oil sands and shales but snow cover and vegetation precluded detailed observation and description of the sediments. Likewise, the subcrop lithology between the outcrops of massive limestone was not determined due to the snow but was assumed to be limestone similar to that observed in the cliff exposures, overlain by thin Quaternary tills and/or vegetation.

A geological map of the Hammerstone South area was created as a result of the field mapping (Figure 2).

3.4 Conclusions

The literature review, air photo studies and field work documented that limestone occurred at surface within the Hammerstone South permit area. The field work identified that the limestone lithologies encountered are geologically similar to those encountered to the north in the Hammerstone Project area and in the Muskeg Valley Quarry.

It was concluded that the Hammerstone South area has high potential for industrial minerals either as a future expansion of the Hammerstone Project or as a separate quarry operated by Birch Mountain. As a result, Birch Mountain decided to stake the available land in December, 2006. Future exploration work is planned to more fully document the limestone occurrences, to collect samples for testing and select possible drilling locations.



LEGEND

-  Lakes and Rivers
-  Roads
-  Birch Mountain Metallic and Industrial Mineral Permits
-  BMD Metallic and Industrial Mineral Leases

-  Cretaceous Subcrop
-  Devonian Subcrop
-  Massive to nodular limestone
-  Bedded grey limestone
-  Fossiliferous limestone
-  Limestone (undifferentiated)

UTM NAD 83



Figure 2. Hammerstone South Subcrop Geology

August 22,07

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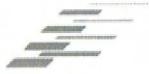
4.0 REFERENCES CITED

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- Norris, A. W., 1963. Devonian Stratigraphy of northeastern Alberta and northeastern Saskatchewan. Geological Survey of Canada, Memoir 313.
- Norris, A. W., 1973. Paleozoic (Devonian) geology of northeastern Alberta and northwestern Saskatchewan, *in* Carrigy, M. A., and Kramers, J. W., Eds., Guide to the Athabasca Oil Sands Area. Alberta Research Council, Information Series No. 65, p 15-76.
- Olson, R. A., Dufresne, M. B., Freeman, M. E., Eccles, R., and Richardson, R.J.H., 1994. Regional metallogenic evaluation of Alberta. Alberta Geological Survey, Open File Report 1994-08.



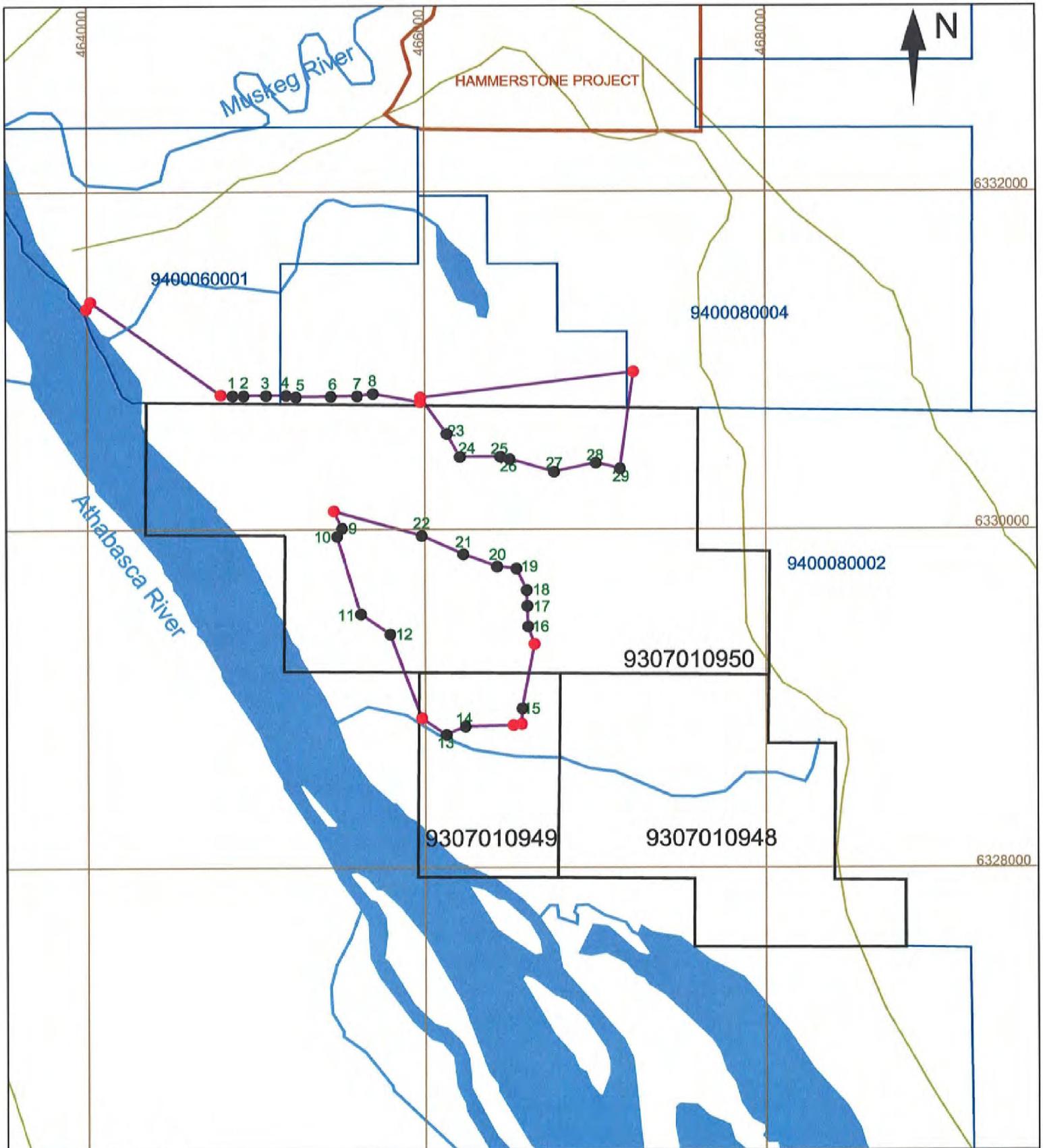
PART C

SUPPORTING APPENDICES



Appendix A. Field Mapping Program Nov. 2006

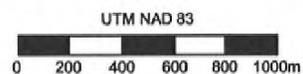
A.1 Station Location & Traverse Map



LEGEND

-  Lakes and Rivers
-  Roads
-  Birch Mountain Metallic and Industrial Mineral Permits
-  BMD Metallic and Industrial Mineral Leases

-  Traverse Lines
-  Field Stations with descriptions
-  Stops without descriptions



**Appendix A.1.
Hammerstone South
Station Location and
Traverse Map**

August 22,07

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Appendix A. Field Mapping Program Nov. 2006

A.2 Station Descriptions



Station	Easting	Northing	Description
1	464860	6330793	Outcrop of limestone similar to that observed in MVQ & Hammerstone: light tan, massive to slightly nodular limestone with very little shale component
2	464925	6330793	4 m high cliff of massive limestone; identical to that at station 1; outcrop runs north-south
3	465056	6330793	3 m high cliff of massive limestone running north-south; similar to previous
4	465175	6330794	Outcrop of massive to slightly nodular limestone
5	465234	6330785	3 m high outcrop of massive limestone; similar to previous
6	465442	6330788	4 m high cliff of massive limestone; identical to that at station 1; outcrop runs north-south
7	465596	6330790	4-5 m high knoll of massive limestone; similar to previous
8	465690	6330803	Small (2m) high knoll of massive to slightly nodular limestone; similar to previous
	464030	6331346	Outcrop of limestone along Athabasca River west of old drill site; 1-2 m of massive tan limestone exposed
	464002	6331306	Walked down to River; 10 m high cliff can't get down; bedded grey limestone with competent fossiliferous unit exposed at base
9	465507	6330006	1 m high exposure of massive limestone like at station 1
10	465473	6329759	Large 5 m high knoll of massive limestone; thickest exposure to date
11	465617	6329502	4 m high knoll of massive to slightly nodular limestone
12	465790	6329378	Outcrop of massive to slightly nodular limestone
13	466120	6328784	3 m high exposure of massive limestone; similar to previous
14	466231	6328833	Continuation of knoll uncovered at Station 13; massive limestone
15	466565	6328940	Flat knoll about 3 m high; massive limestone
16	466600	6329425	Outcrop of massive to slightly nodular limestone
17	466595	6329546	Part of same knoll of massive limestone as station 16
18	466591	6329640	Small, 1-2m high knoll of massive to slightly nodular limestone
19	466532	6329769	Small 1 m high outcrop of massive limestone
20	466420	6329780	2 m high outcrop of massive limestone
21	466224	6329852	2-3 m knoll of massive limestone; similar to previous
22	465879	6329962	North-south trending ridge of massive limestone, 1-2 m high
23	466126	6330565	Continuous knoll of massive limestone from 465973,6330779
24	466202	6330428	Eastern knoll of 2 knolls of massive to nodular limestone, similar to previous
25	466441	6330429	Large low knoll of massive limestone; similar to previous
26	466494	6330415	Eastern edge of same knoll as at station 25
27	466753	6330339	Outcrop of massive limestone
28	466998	6330393	Low 1 m high ledge of massive limestone; similar to previous
29	467139	6330359	Last outcrop before oil sands; massive limestone; similar to previous; walked north to 467219,6336930 no channel observed.



Appendix B. Statements of Qualifications



STATEMENT OF QUALIFICATIONS

Kyla M. Arden-Maki, B.Sc., M.Sc.

I, Kyla M. Arden-Maki, certify and declare that I am a graduate of the University of Manitoba, Winnipeg, Manitoba, with a B.Sc. in Geology (1993) and an M.Sc. in Geochemistry (1995).

My experience from 1991 to 2007 includes:

- conducting field geological and geochemical surveys
- planning and supervising field mineral exploration programs involving geological, geochemical and drilling programs
- planning and conducting scientific research, including publishing and presentation of results in peer-reviewed journals
- preparing government assessment reports
- developing and maintaining geological databases
- developing subsurface geological models and creating operational mine plans

Since May, 1997, I have been employed as Project Geologist, Birch Mountain Resources Ltd.

I reside at:

71 Scenic Cove Place N.W., Calgary, Alberta T3L 1M6.

I HEREBY CERTIFY:

1. That the work described was conducted with my participation and supervision;
2. That I participated in the production of this report.

Dated at Calgary, Alberta, this 30th day of August, 2007.

A large black rectangular box redacting the signature of Kyla Arden-Maki.

Kyla Arden-Maki, M.Sc.



STATEMENT OF QUALIFICATIONS

Gerald F. Kozdial, B.Sc.

I, Gerald F. Kozdial, certify and declare that I am a graduate of the University of Calgary, Calgary, Alberta, with a B.Sc. in Geology (2002).

My experience from 1995-2007 includes:

- Project lead for multiple drilling and sampling programs
- Experience in field mapping projects
- Involved in geochemical field programs
- Experience in planning and conducting geochemical research projects
- Experience in digital mapping
- Certified knowledge of mining software (Minex Quarry)

From May 1, 1997 to April 30, 2002, I was employed as a part-time Geologist with Birch Mountain Resources Ltd. Since May 1, 2002, I have been employed as a full-time Geologist with Birch Mountain Resources Ltd.

I reside at: 257 – 22nd Avenue NW, Calgary, Alberta, T2M-1N2

I HEREBY CERTIFY:

1. That I have visited the properties discussed in this report;
2. That I have participated in the production of this report.

Dated at Calgary, Alberta, this 30th day of August, 2007.

Gerald Kozdial, B.Sc.