

MAR 20020009: WINDOW PROSPECT

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ASSESSMENT REPORT

WINDOW PROSPECT, COLISEUM MOUNTAIN

889966 Alberta Inc.
Metallic and Industrial Minerals Permit No. 9300040001

Submitted by: 889966 Alberta Inc.

7

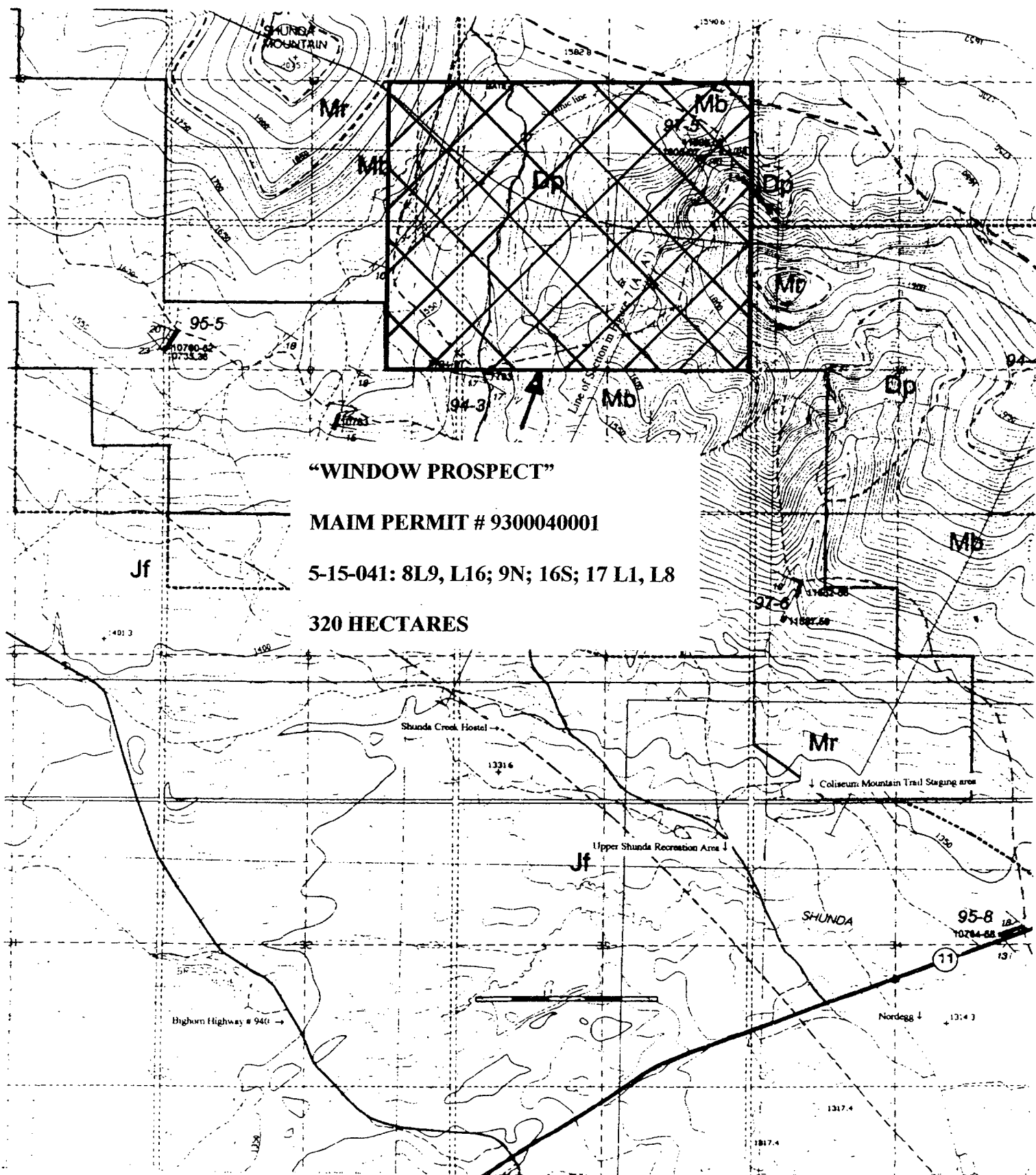
August 26, 2002

Geologist: W. D. McRitchie Ph. D.

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"WINDOW PROSPECT"

MAIM PERMIT # 9300040001

5-15-041: 8L9, L16; 9N; 16S; 17 L1, L8

320 HECTARES

Figure 1 Map identifying Permit Number and Boundary

Summary:

A regional evaluation of limestone prospects in the David Thompson Corridor, resulted in the decision to focus attention on the Upper Palliser Limestone in a geological inlier between Shunda and Coliseum Mountains, herein referred to as the "Window Prospect". Previous investigations were evaluated and additional samples of limestone were collected from a well-exposed section on the NW shoulder of Coliseum Mountain. Chemical analyses indicate the presence of a ~30 m interval at the top of the Palliser Formation in which CaO contents are consistently greater than 50%. Future work will attempt to trace this unit around the perimeter of the inlier, looking for more favourable quarrying attributes.

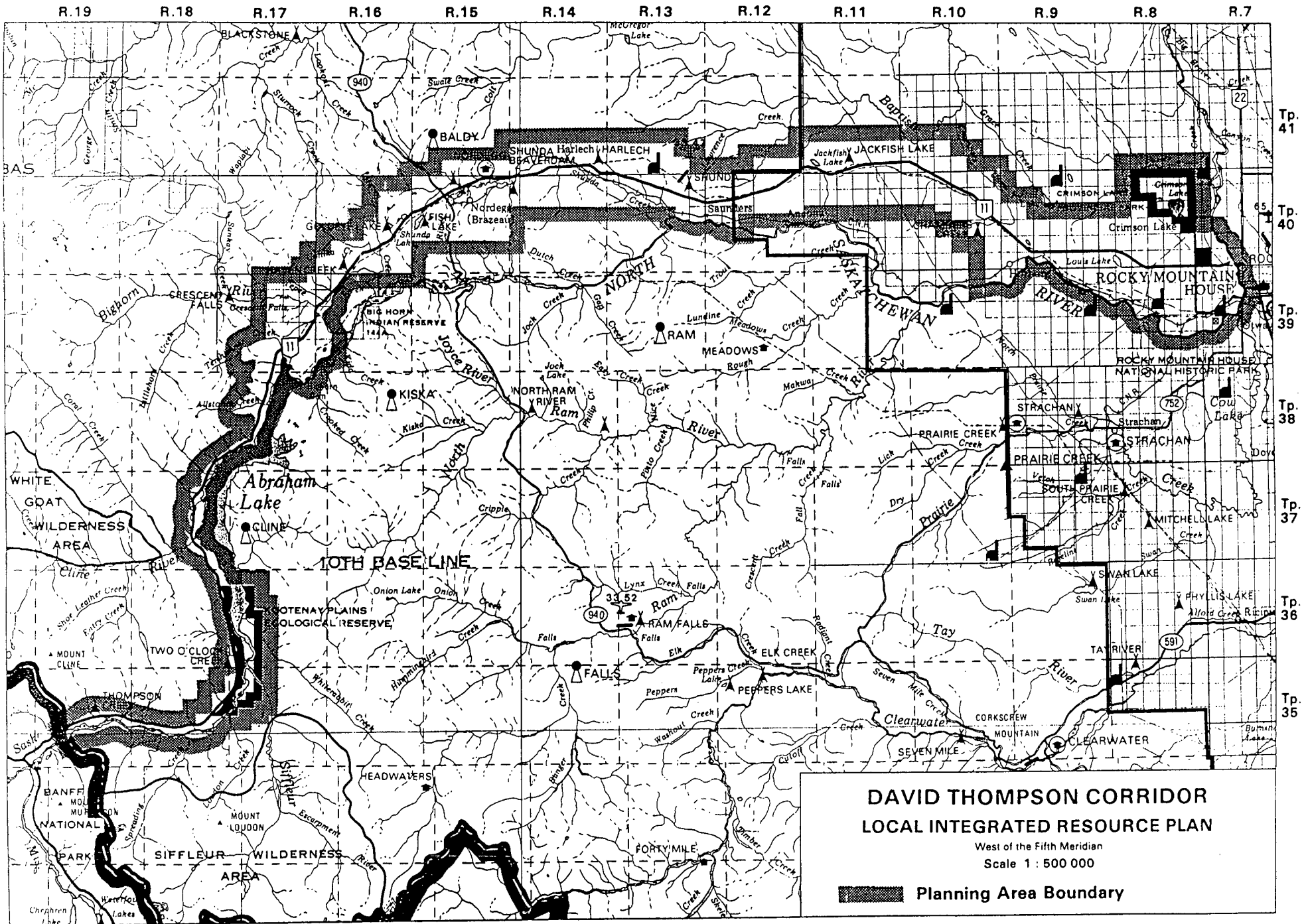


Figure 2 General setting of the David Thompson Corridor and Nordegg.

I – Introduction:

This report covers the initial evaluation of the “Window Prospect” near Coliseum Mountain in the Nordegg region (Figure 1), as a potential source of calcium-rich limestone. The investigation follows a broader evaluation of limestone occurrences in the David Thompson Corridor, in which extensive use was made of previous studies of limestone and dolomite in this region by Holter (1976, 1989, 1994) and Hamilton (1987, 1989, 1998), as well as geological maps and reports by the Geological Survey of Canada. This background information was augmented by a three day visit to the region (June 25-27, 1999), during which each of the prospects was evaluated and a detailed sampling profile collected at the “Window Prospect”.

II- General setting of the David Thompson Corridor and Nordegg:

The David Thompson Corridor is the region adjoining the North Saskatchewan River where it transects the Foothills, Front Ranges and Main Ranges of the Alberta Rocky Mountains (Figure 2). The mountains in this area have a northwest structural grain and form rugged topography, rising to an average elevation of 2550 m. The valley bottom has an elevation of about 1330 m and is flooded in part by Abraham Lake.

Nordegg, nestled on the western slopes of the Brazeau Range, lies 220 km northwest of Calgary and 307 km southwest of Edmonton. Highway 11 provides the principal access leading from Rocky Mountain House (87 km to the east), to Saskatchewan Crossing on the Banff/Jasper Parkway (83 km to the west). Just west of Nordegg, Highway 11 is bisected by the Bighorn Highway #940 (also designated Secondary Highway #734) a Forest Service gravel road that extends south to the North Ram and Ram Rivers and Sundre, and north to Robb and Hinton. In addition to these major access roads, there are many smaller roads associated with the oil and gas industry, recreation facilities, private holdings and backcountry access.

Limestone was originally quarried as railway ballast from two small quarries in the Pekisko Formation, one of which, at Mile 148.5 near Nordegg, was described by Goudge in 1945 and Matthews (1960). Today, the quarries are operated by Nordegg Lime Ltd., of Calgary and produce calcitic and dolomitic industrial minerals as well as aggregates and rip-rap.

The other principal industries active in the area are forestry, fishing and tourism.

The David Thompson Corridor is one of the few mountain areas in Alberta not encumbered by National or Provincial park designations or that of a Wilderness Area. The west end of the 83 km long corridor is bounded on the north by the White Goat Wilderness Area, on the west by Banff National Park and on the south by the Siffleur Wilderness Area. North of Windy Point, the corridor runs parallel to the man-made Abraham Lake which flows into the North Saskatchewan River. To the north, the region is bounded by the Brazeau Range and the old coal mining town of Nordegg, which lies just within the corridor. West of the highway the boundary of the corridor is demarcated by the Bighorn Range. Lying within the corridor are the Kootenay Plains Ecological Reserve, the Landslide Lake Natural Area and the Big Horn Indian Reserve.

Land use designations and management are guided by the David Thompson Corridor Local Integrated Resource Plan (August 1972), the Rocky-North Saskatchewan Sub-regional Integrated Resource Plan, the Brazeau-Pembina Sub-regional IRP and the Nordegg-Red Deer River Sub-Regional IRP.

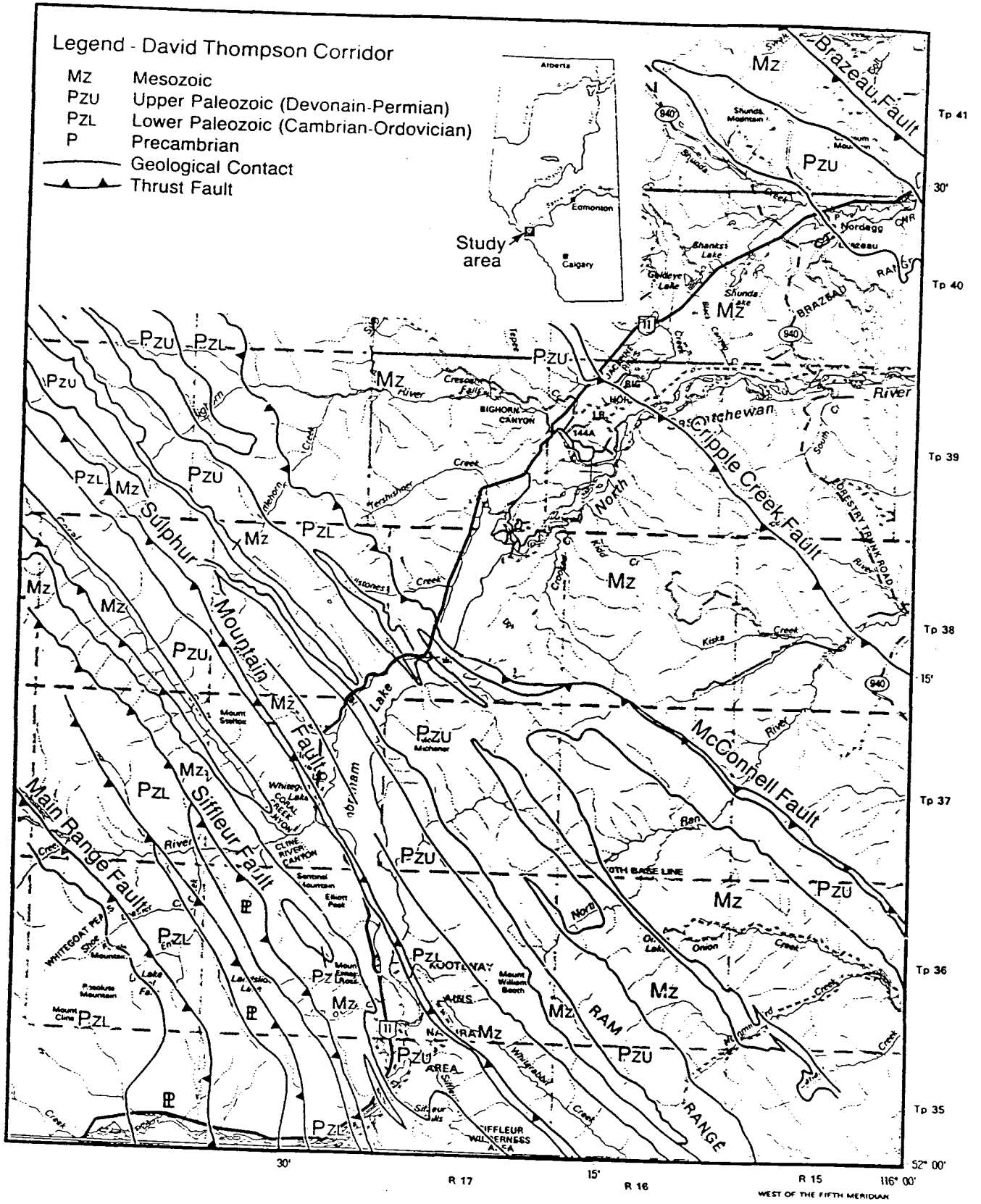


Figure 3 Regional geology of the David Thompson Corridor

Group Formation		Lithology	Thickness (metres)	Age		Map Symbol		
Unnamed Glacial Alluvial			0-60	Quaternary				
Brazeau	"Edmonton"		450-750	Upper	Cretaceous	K	Mz	
	"Belly River"	grey-green	300-450					
Alberta	Wapiabi	dark grey	450-600					
	Cardium	brown	30-150					
	Blackstone	black	210-300					
Blairmore Group		grey to greenish grey	600-810	Lower				
Kootenay		dark grey	90-1020					
Fernie		grey black	75-180	U. M. L.	Jurassic	J		
Spray River	Whitehorse	grey	150-450	U. M. L.	Triassic	Tr		
	Ranger Canyon	rusty brown						
Ishbel Group		black	30-75	U. M. L.	Permian		PP	
Kananaskis		light grey	15-45	M.	Pennsylvanian			
Spray Lakes	"Tunnel Mtn."	brown	180					
	Etherington		33-87					
Rundle	Mt. Head	buff grey	159-210	Upper		Mru	Mr	
	Livingstone	light grey	300-360	Lower		Mlv		
Banff		buff	225-420			Mississippian	Mb	
Exshaw		black						
Palliser		light grey	90-108			Devonian	Dp	
Alexo		buff						
Fairholme	Southesk	Mt. Hawk light grey	150-270	Upper			Df	
	Cairn	Perdrix dark brown	150-300					
	Flume	dark grey	75					
Skoki		grey	0-35	M. L.	Ordovician		OCu	
Survey Peak		green-grey	0-210					
Lynx Group		yellow brown	450	Upper				
Arctomys			15-60					
Pike		grey-green	90			Cambrian	Cpk	
Eldon		buff-grey	360	Middle				CEL
Stephen		red	60-90					EM
Cathedral		buff-grey	300					Cca
Mt. Whyte			150					
Gog Group		grey to red brown	360	Lower			CL	
Miette Group		vari-coloured		Pre-cambrian			R	

Figure 4 Stratigraphic succession in the David Thompson Corridor

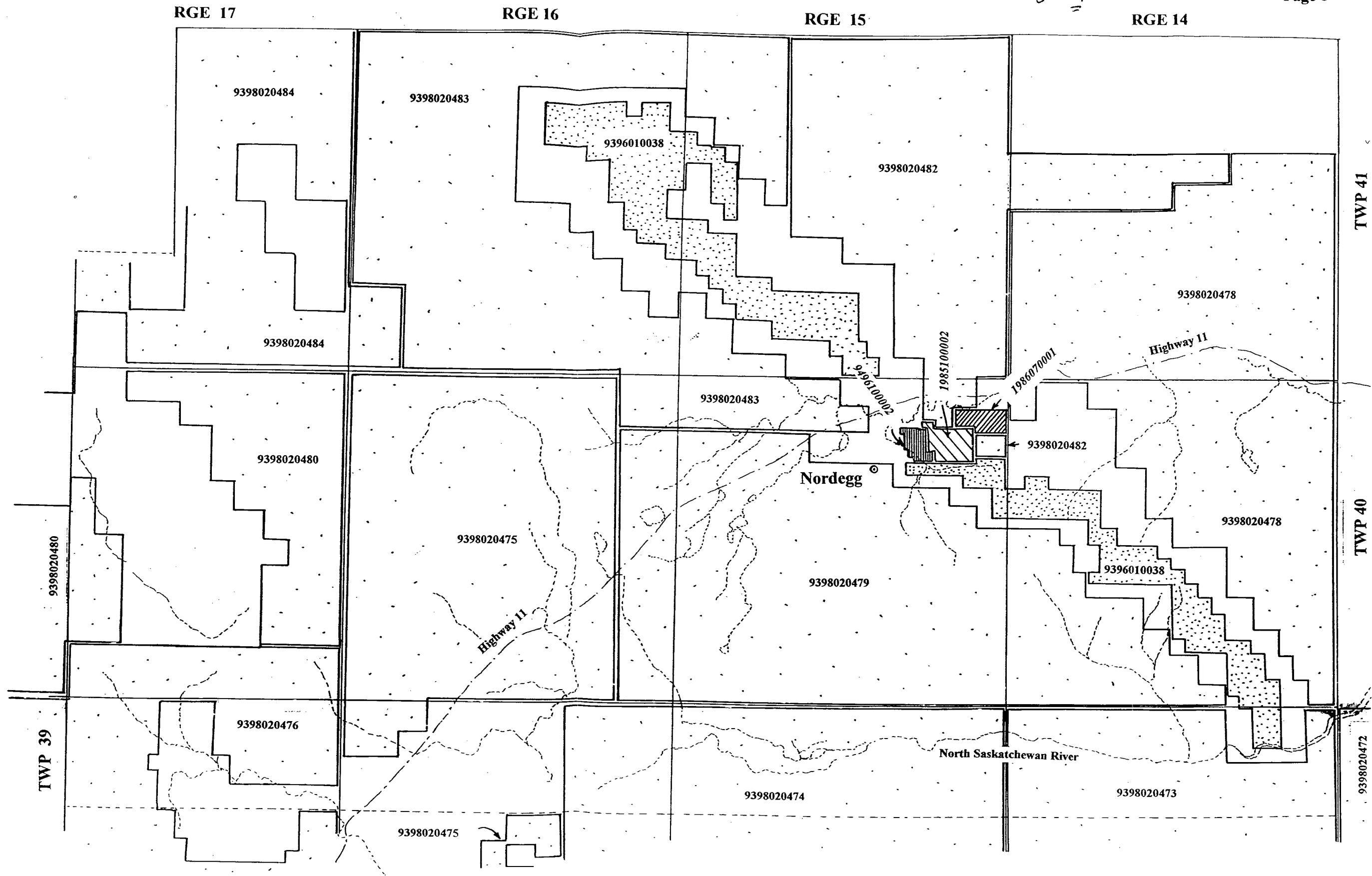
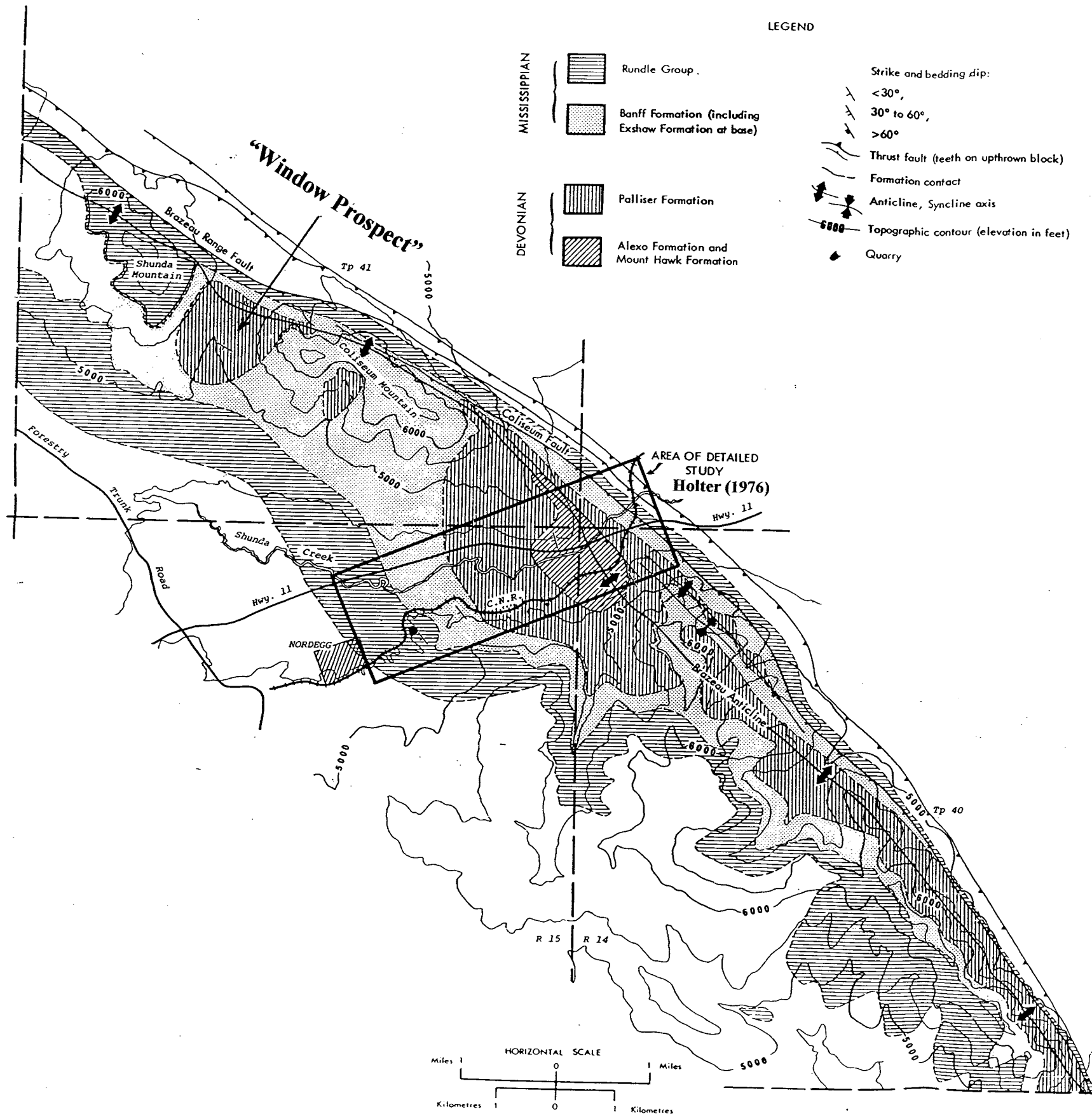
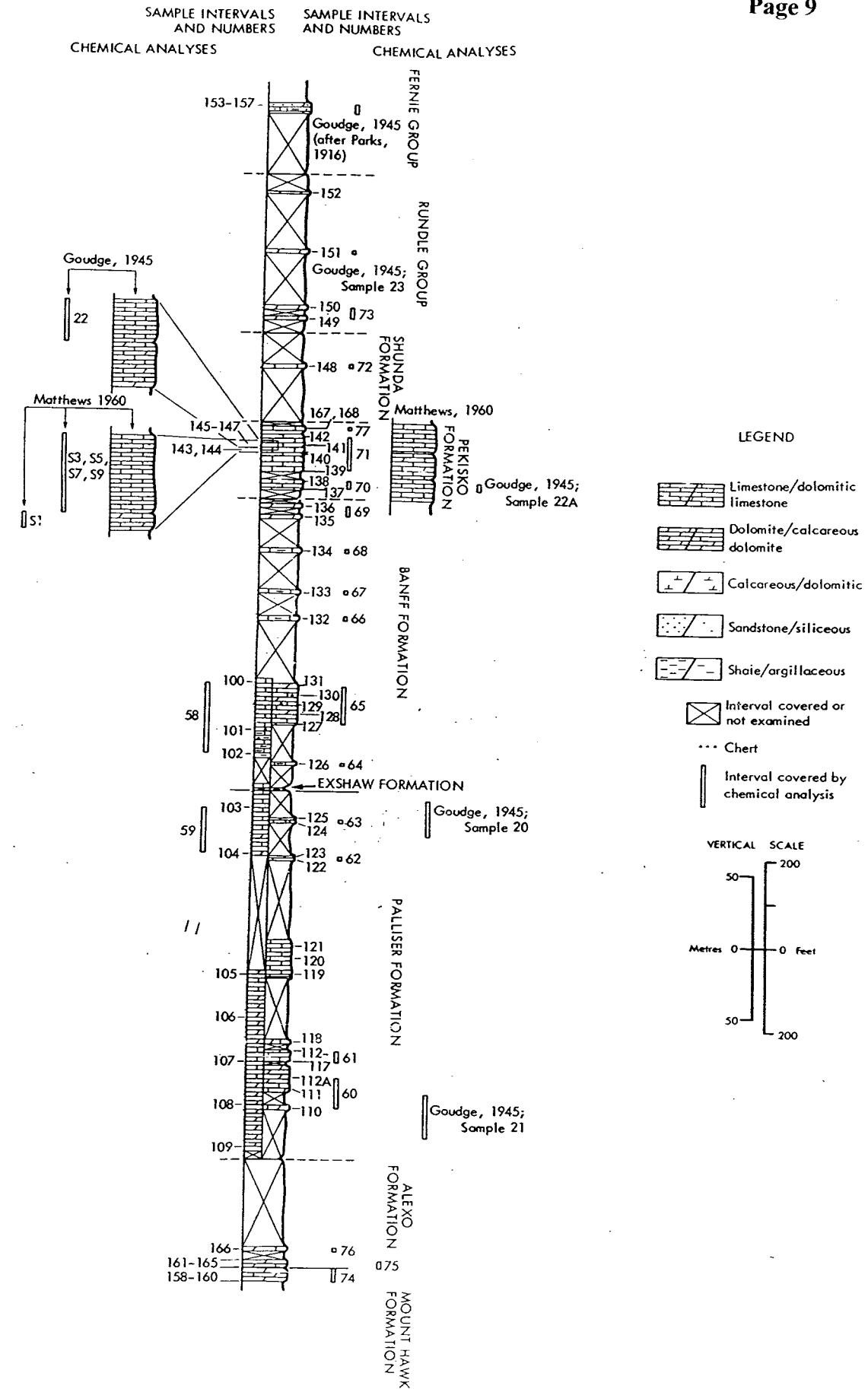


Figure 5 Quarriable mineral and Metallic and Industrial Mineral Permits and Leases in the Nordegg region (circa July, 1999).



GEOLOGY OF THE NORDEGG AREA
 (after Erdman, 1950; Douglas, 1956 and 1958)

Figure 6 Geology and type section for the Nordegg region (Holter, 1976)



COMPOSITE SECTION, LIMESTONE-BEARING STRATA, NORDEGG AREA

III – Geological Setting:

The regional geology and major structural trends of the Rocky mountains in the David Thompson Corridor are shown in Figure 3. The area contains three broad structural domains corresponding to the Foothills, Front Ranges and Main Ranges, all bounded by major thrust faults. The McConnell Fault marks the eastern boundary of the Front Ranges, thrusting Paleozoic rocks onto Mesozoic rocks of the Foothills. The front Ranges extend westward 40-45 km to the Main Ranges Thrust, exposing mostly Upper Paleozoic rocks in three major thrust sheets (McConnel, Sulphur Mountain and Siffleur), with strata dipping moderately to steeply to the southwest. A typical stratigraphic column for the area is shown in Figure 4.

Lower Paleozoic Cambrian carbonates occur in the Eldon and Cathedral Formations. Upper Paleozoic carbonates include the Upper Devonian Palliser Formation and the Lower Mississippian Pekisko and Livingstone Formations, which are both part of the Rundle Group.

The geology is mapped at a reconnaissance scale (Verrall, 1968), but detailed mapping exists only for NTS sheets 83C/1 (Mountjoy and Price, 1974) and 83C/8 (Douglas, 1955). Goudge (1945) and Matthews (1960) sampled the limestones of the Nordegg area, and more recently Holter (1976, 1989, 1994) and Hamilton (1987, 1989, 1998) conducted evaluations of the carbonates, principally as a source of precipitated calcium carbonate (PCC) and ground calcium carbonate (GCC) paper filler.

These studies indicated that the Palliser Formation in the Brazeau Range, tends to be substantially dolomitized. By way of contrast, the Pekisko Limestone, lying above the Banff Formation, contains significant intervals of high-calcium limestone, and this has supported extraction operations at Nordegg since 1984. Most, if not all, of the ground underlain by the Pekisko Formation is under permit (Figure 5), consequently this project focused on terrain underlain by the Palliser Formation.

As noted above, the Upper Devonian Palliser Formation at Nordegg is invariably described as being predominantly dolomitic. This is convincingly reinforced in the most recent maps of the region by Hamilton, Price and Chao (1998), which are based on original reports from Palliser exposures at the North Saskatchewan River Gap (McLaren, 1955), from quarries in the Nordegg region (Goudge, 1945, Matthews 1960 and Holter 1976) and for the Nordegg Map-area by Douglas (1956), including “the ridge north of Shunda Creek”, on the east flank of Coliseum Mountain (Figure 6).

The dominance of dolomitic lithologies is reiterated by Douglas (1958) in his description of the Palliser Formation in the Chungo Creek Map-area to the north (Douglas, 1958). However, reference is also made to “the entire formation being penetrated in the Arrow Brazeau No. 1 Well, between 280 and 1,025 feet depths, a stratigraphic interval of about 700 feet. The lower 640 feet drilling thickness (600 feet stratigraphic thickness) consists mainly of buff, finely crystalline, sugary textured dolomite, with porosity varying from traces of pinpoint porosity to fair, fine porosity and scattered vugs...” “The upper 95 feet of drilling thickness (90 feet stratigraphic thickness) are dark brownish grey, finely crystalline, argillaceous limestone, and fine to medium crystalline and fossiliferous limestone.”

This is particularly relevant to the current investigation of the “Window” of Palliser Formation in the valley between Baldy Fire Lookout (Shunda Mountain) and Coliseum Mountain, since the Arrow Brazeau No. 1 Well was collared up-stratigraphy from the Palliser Formation and immediately southwest of the “Window”.

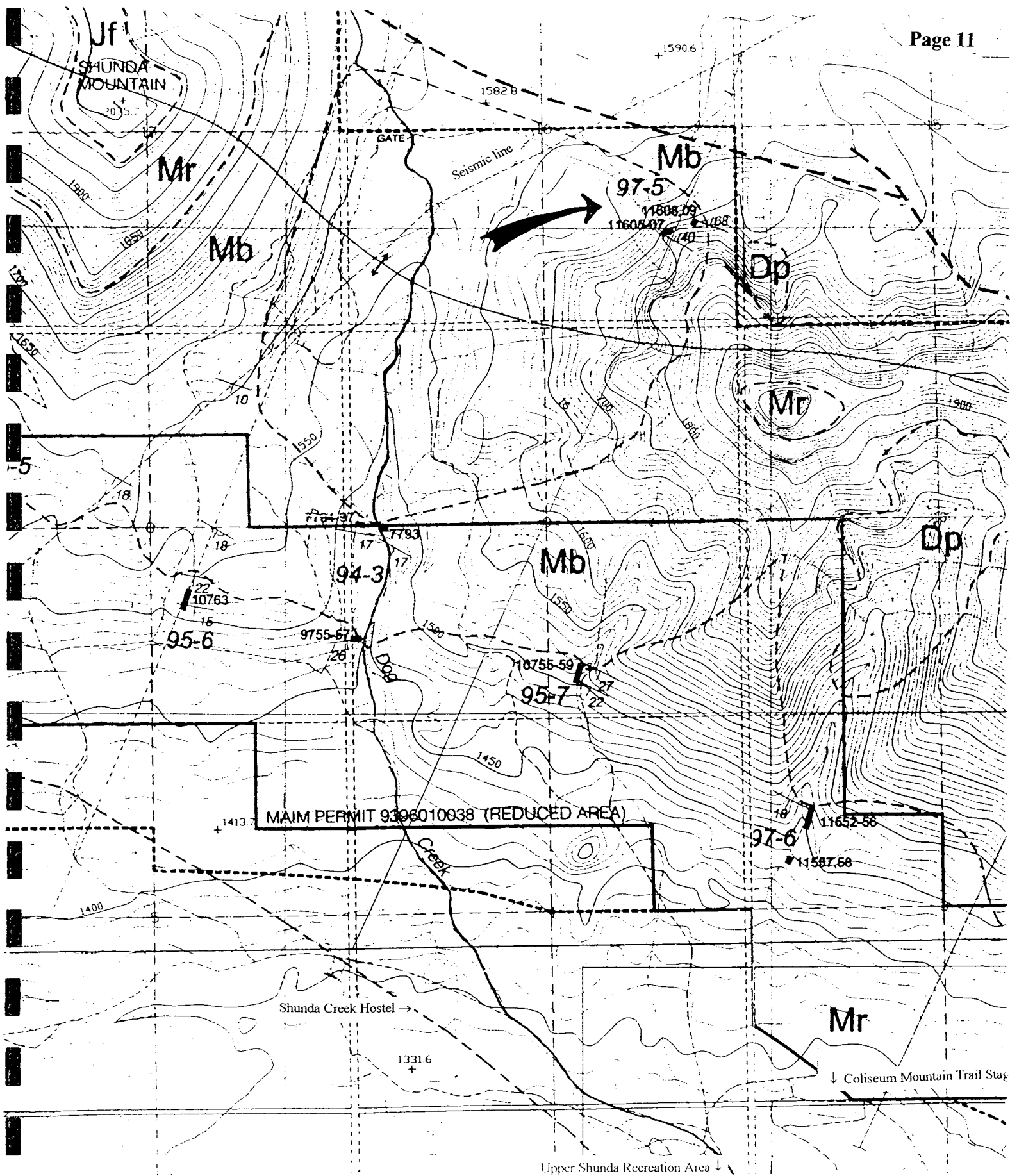


Figure 7 Section 97-5 on the northwest shoulder of Coliseum Mountain (Pana and Dahrouge, 1998).

SHUNDA

Table 1 Northwest shoulder of Coliseum Mountain, Resampling Profile (Section 97-5, Pana and Dahrouge, 1998)

Sample No.	Thickness (m)	Description
04-99-COL-10	0.5	Medium grey, fg-mg. lst with mm-thick calcite veinlets. Relatively massive layer.
04-99-COL-9	2.5	Microfractured, platy and laminated dark grey, fg. limestone.
04-99-COL-8	2.5	Flaggy bedded, fg-mg., medium and dark grey limestone; secondary calcite veinlets
04-99-COL-7	2.0	Medium grey, fg-mg., limestone with abundant secondary mm-thick calcite veinlets
04-99-COL-6	2.0	Dark grey to black fg., platy and hackly limestone with thin medium grey mg. layers
04-99-COL-5	2.0	Dark grey, fg., equigranular limestone. Relatively massive layer.
04-99-COL-4	2.0	Fg limestone, mg., to locally fg., black and microjointed; secondary calcite veinlets.
04-99-COL-3	3.0	Interlayered dark grey fg. limestone and charcoal grey, almost aphanitic lst.; microfr. with calcite veinlets
04-99-COL-2	3.0	F-vfg, equigranular, dark grey, microjointed limestone with numerous mm-thick calcite veinlets
04-99-COL-1	3.0	Interlayered fg-vfg., equigranular, medium grey limestone in thin flaggy beds; sporadic mm thick veinlets.
Total thickness	<u>22.5</u>	

It also appears that the limestone member intersected in the No. 1 Well is the same as that sampled in Section 97-5 on the north flank of Coliseum Mountain (Fig. 7) during a regional evaluation of high-calcium limestone occurrences in west-central Alberta, conducted by Halferdahl and Associates (Pana and Dahrouge, 1998) on behalf of Continental Lime Ltd.

At that locality, Pana and Dahrouge gave the following description of the Upper Palliser Formation:

Sample	Formation	Strat. Thick.(m)	Description	CaO (%)	MgO (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	Fe ₂ O ₃ (%)	SrCO ₃ (ppm)	MnO (ppm)	P ₂ O ₅ (ppm)
Section 97-5: North Flank of Coliseum Mountain (Fig. 7.1)											
11609	Upper Palliser	10	<u>Limestone</u> , very dark-grey to black fresh, greyish-brown weathered, some pinkish material on weathered surfaces, micritic, numerous fractures and joints, and abundant white secondary calcite blebs and stringers, attitude of bedding 115°/73° NE	53.41	0.98	1.90	0.286	0.176	469	105	78
11608	Upper Palliser	6	<u>Limestone</u> , as above, attitude of bedding 110°/68° NE	53.87	0.73	1.72	0.251	0.122	490	61	<70
		16	covered, offset 45 m at 270° from base of 11608								
11607	Upper Palliser	7½	<u>Limestone</u> , brownish-grey to very dark-grey fresh, grey weathered, beds 10-50 cm thick, rusty-brown material on fractures, thin white calcite stringers	52.31	1.69	2.17	0.369	0.224	449	95	122
11606	Upper Palliser	6	<u>Lime mudstone</u> , dark-greyish brown fresh, dark-grey weathered, cryptocrystalline, attitude of bedding 119°/40° NE	53.41	1.07	1.69	0.233	0.157	459	57	<70
11605	Upper Palliser	1½	<u>Limestone</u> , very dark-grey fresh, grey weathered, micritic, massive, attitude of bedding 119°/41° NE	48.42	5.23	1.25	0.178	0.141	363	84	<70

The total stratigraphic thickness was measured at 47 m, including a 16 m covered section above the lower 15 m thick interval. Although CaO contents of their five samples fall below those required for lime production, they are acceptable as a source of calcium-rich limestone (i.e. > 50% CaO).

IV - Current investigation:

The region was visited (November 25th, 1999) as part of a three day inspection of properties in the larger Corkscrew Mountain, Prairie Creek region. The investigation was hampered to some extent by thick vegetation in the valley and on the slopes of Coliseum Mountain, as well as >20 cm blanket of snow. As a consequence, visible bedrock exposures were limited to those on steep slopes or in cliff sections.

New aerial photo coverage at a scale of 1:10 000 was contracted through Foto Flight, Calgary, to assist future groundwork on the prospect.

The lower segment of Pana and Dahrouge's Section 97-5 (UTM 561625E 5819735N) (Figure 7) was photographed and sampled in greater detail (Table 1). Samples were shipped to Acme Laboratories in Vancouver for Group 4a wholerock analysis by ICP. The outcrops occur on steep/near vertical slopes, approximately 200 m above the more level ground, adjacent to the 060° azimuth seismic cut line which provides access from the dirt road to the Baldy Fire Lookout on Shunda Mountain. The total thickness measured at this locality was 22.5 m, somewhat greater than that reported previously (Pana and Dahrouge, 1998). The section above sample 10 is a bedding plane that appears to extend to the base of the steep (40°) slopes at the NW corner of Coliseum Mountain. The section is predominantly limestone with no evidence of cherty or dolomitic contamination.

The chemical analyses stemming from the most recent sampling program are shown in Table 2 (and Appendix A), along with those obtained by Pana and Dahrouge (1998a).

Table 2. Chemical analyses from Section 97-5, North flank of Coliseum Mountain.

Current Program (M ^c Ritchie 1999)					Pana and Dahrouge (1998a)				
Top Thick. (m)	Sample #	CaO	MgO	SiO ₂	Thick. (m)	Sample #	CaO	MgO	SiO ₂
(10)	-	-	-	-	10	11609	53.41	0.98	1.90
(6)	-	-	-	-	6	11608	53.87	0.73	1.72
16					16				
						GAP			
0.5	Col-10	53.99	0.99	1.32	7.5	11607	52.31	1.69	2.17
2.5	Col-9	53.54	0.90	1.62					
2.5	Col-8	53.67	1.02	1.53					
2.0	Col-7	53.99	0.6	1.65	6	11606	53.41	1.07	1.69
2.0	Col-6	53.21	1.05	1.90					
2.0	Col-5	53.89	0.61	1.92					
2.0	Col-4	53.85	0.61	2.09					
3.0	Col-3	54.06	0.62	1.74					
3.0	Col-2	49.53	3.98	2.06	1.5	11605	48.42	5.23	1.25
3.0	Col-1	47.63	6.59	1.42					
<u>54.5</u>									
Base									
					<u>47.0</u>				

Both results support the existence of a significant limestone layer at the top of the Palliser Formation, underlain by more dolomitic units. If one includes the 16 m gap, and the upper 16 m sampled by Pana and Dahrouge, then the current investigation indicates a limestone layer with a thickness of 48.5 m, compared to Pana and Dahrouge's estimate of 45.5 m. Both estimates exceed the 30 m thickness encountered in the Arrow Brazeau #1 Well on the southeast flank of the "Window".

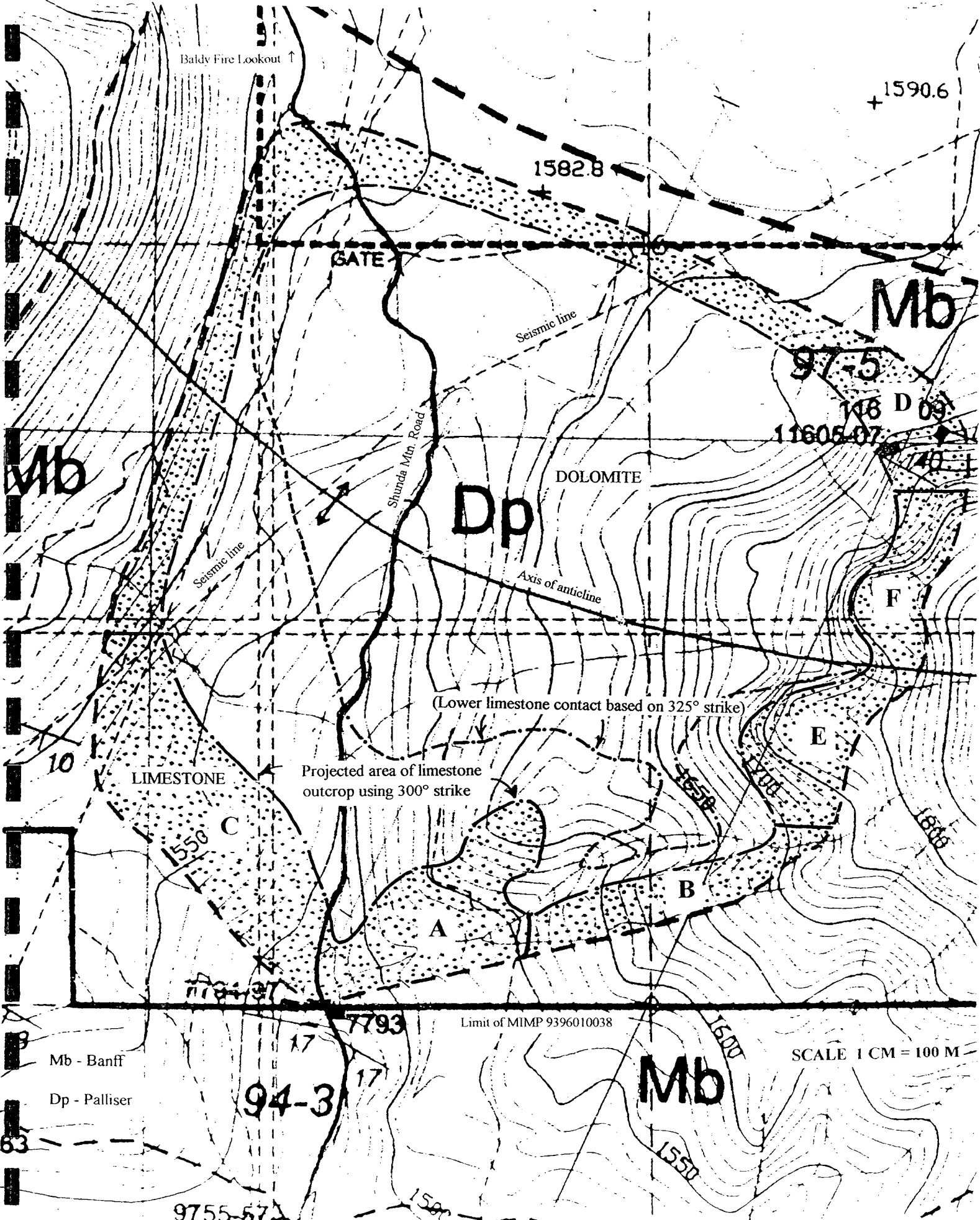
Dips hover around 40° to the north at the base of the section, becoming steeper (70°) in the outcrops above the gap. The outcrops are close to a dip section, indicating the possibility that the beds would continue to the base of the slopes, where they are currently concealed beneath vegetation. Inspection of the geological map by Douglas (1958), indicates the dips continue to decrease westwards as the fold hinge is approached.

V – Conclusion:

The results of the current sampling program confirm the relatively pure chemistry of the limestone at Section 97-5. CaCO₃ contents are consistently >95% and MgCO₃ contents <2.2%. All other elements are present in minor or trace amounts. Consequently, although much of the Palliser Formation is dolomitic, it appears that the uppermost interval (Costigan Member?) has a chemistry that meets the objectives of this evaluation.

The quarrying attributes of the limestone at Section 97-5 are less than ideal, given the steep dips and slopes associated with the locality. Future sampling and mapping should focus on the southern and southwestern perimeter of the Palliser Formation inlier where dips are much shallower and easy access is afforded by way of the Shunda Mountain access road (Figure 8).

Figure 8 Projected trace of lower contact of limestone member in the "Window", using a strike of 300°. Provisional subdivision of inferred outcrop belt of limestone member into six sub-areas A-F.



Mb - Banff
 Dp - Palliser

SCALE 1 CM = 100 M

VI - References:

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STATEMENT OF QUALIFICATIONS:

Dr. W. D. McRitchie

Employed with Manitoba Energy and Mines for 31 years 9 months (1965-1997).

1962 B.Sc Hons. Geology, Durham University, England

1965 Ph. D. Durham University, England

1965-1969 Project Geologist, Precambrian Subdivision

1970-1975 Project Leader/Coordinator, Precambrian Subdivision

1975-1997 Director, Manitoba Geological Survey.

Prior to retirement in November 1997, Manitoba rep. on Provincial Geologists' Committee (1979-1997), and National Geological Surveys Committee (1979-1997), and numerous other appointments including Provincial Co-chair NATMAP program (1992-1996), Provincial Co-Chair Man/Can Mineral Agreements (1979-1997), Prov. Rep on Geological Foundation, Min. Deposits Divn., GAC, and Geoscience Council Evaluation Committees for Ontario and BC Geological Surveys. As Director of Manitoba Survey, reported directly to Deputy Minister 1992-1997; Departmental Co-Chair of Manitoba's Mineral Exploration Liaison Committee-MELC, and member of evaluation board for Provincial Mineral Exploration Assistance Program-MEAP (1994-1997).

During career with Manitoba Energy and Mines authored and co-authored over 130 technical publications dealing with Manitoba's geological and mineral endowment.

1998-2001 East Kootenay Science Council

1998-2002 LKAR Geological Consulting – 20+ confidential reports on industrial minerals.



WHOLE ROCK ICP ANALYSIS

McRitchie, W. D. File # 9904646

7 Aspen Crescent, Fernie BC V0B 1M0 Submitted by: W.D. McRitchie

SAMPLE#	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sr	Zr	Y	Nb	Sc	LOI	TOT/C	TOT/S	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%
04-99-COL-1	1.42	.13	.18	6.59	47.63	.02	.07	<.01	.03	.01	.003	10	<20	183	<10	<10	<10	<1	43.9	12.22	.05	100.01
04-99-COL-2	2.06	.31	.20	3.98	49.53	.03	.18	.01	<.01	.01	.002	12	<20	252	<10	<10	<10	1	43.7	12.31	.02	100.05
04-99-COL-3	1.74	.23	.09	.62	54.06	.05	.14	.01	<.01	<.01	.003	11	<20	275	<10	<10	<10	<1	43.1	11.84	.04	100.08
04-99-COL-4	2.09	.22	.10	.61	53.85	.02	.13	.01	.01	.01	.001	7	<20	273	<10	<10	<10	<1	42.9	12.03	.03	99.99
04-99-COL-5	1.92	.33	.13	.61	53.89	.03	.19	.01	<.01	<.01	.003	12	<20	282	<10	<10	<10	1	43.0	12.22	.02	100.15
04-99-COL-6	1.90	.41	.29	1.05	53.21	.01	.24	.02	<.01	.01	.002	13	<20	261	<10	<10	<10	<1	42.9	12.22	.03	100.08
04-99-COL-7	1.65	.34	.17	.60	53.99	.07	.18	.01	<.01	.01	.002	11	20	271	<10	<10	<10	<1	43.0	12.22	.02	100.06
04-99-COL-8	1.53	.21	.12	1.02	53.67	.02	.14	.01	.01	.01	.002	9	<20	253	<10	<10	<10	<1	43.3	12.22	.01	100.08
04-99-COL-9	1.62	.34	.18	.90	53.54	.05	.20	.02	.01	.01	.002	12	<20	268	10	<10	290	<1	43.1	12.22	.02	100.05
04-99-COL-10	1.32	.18	.17	.99	53.99	.02	.11	.01	<.01	.01	.001	8	25	252	<10	<10	278	<1	43.0	12.41	.01	99.88

STANDARD SO-15/CSB | 49.37 12.91 7.30 7.26 5.80 2.41 1.94 1.60 2.70 1.39 1.060 1984 71 396 943 23 21 13 5.9 2.43 5.29 99.95

GROUP 4A - 0.200 GM SAMPLE BY LIBO2 FUSION, ANALYSIS BY ICP-ES. LOI BY LOSS ON IGNITION.
TOTAL C & S BY LECO. (NOT INCLUDED IN THE SUM)
- SAMPLE TYPE: LIMESTONE
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: DEC 1 1999 DATE REPORT MAILED: Dec 17/99 SIGNED BY: [Signature] D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Appendix:

Wholerock ICP analyses from resampling of section 97-5, northwest shoulder of Coliseum Mountain (04-99-COL-1 to 04-99-COL-10). Acme Analytical Laboratories, Vancouver, BC.

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