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REDWATER ALBERTA
 WEST OF FOURTH MERIDIAN - OUEST DU QUATRIÈME MÉRIDIEN
 Scale 1:50,000 Échelle

Map Scale: 1:50,000
 1 cm = 500 m

Vertical Scale: 1:50,000
 1 cm = 500 m

Projection: Transverse Mercator Projection

Vertical Datum: Canadian Mean Sea Level

Horizontal Datum: North American Datum 1987

GENERAL COMMENTS

Deposit Number	Material Description	Reserves (1000 m³) Sand	Additional Comments	Texture (%)			Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments	
				Gravel	Sand	Fines						
1	Clean sand	3,000	24,000	12	85	3	-	1.5	1,890	Outwash	High water table.	
2	Clean gravelly sand	500	1,400	26	73	1	-	1.0	65	Fluvial-terrace	At the pit the deposit becomes sandier with depth.	
3	Clean sandy gravel	3,500	2,300	60	39	1	-	1.0	200	Fluvial-terrace	Texture may vary over deposit.	
4	Clean gravelly sand	300	870	51	48	1	-	2.0	3.0	40	Fluvial-terrace	Deleterious ironstone and sandstone present.
5	Clean sandy gravel	480	430	-	-	-	-	2.0	3.0	30	Fluvial-terrace	Texture may vary over deposit.
6	Clean sand	900	-	-	-	-	-	0	1.5	150	Eolian	Dunes.
7	Clean sand	710	-	-	-	-	-	0.5	1.0	1,780	Glaciofluvial-outwash	Deposit occasionally contains fine gravels up to 20%.
8	Clean sandy gravel	1,800	1,400	57	42	1	-	1.0	3.0	110	Fluvial-terrace	Texture may vary over deposit. Cool fragments present.
9	Clean sand	1,700	5,600	23	76	1	-	0.5	2.0	370	Outwash	High water table.
10	Sand(?)	-	-	-	-	-	-	0.5	7,550	Glaciofluvial-pitted delta	Variable texture, fine sand and silt to clay and till.	
11	Clean sand	6,900	-	98	2	-	-	0.5	1.5	470	Outwash	Mainly fine sand.
12	Clean sand	30,000	-	10	88	2	-	0.5	3.0	1,130	Outwash	Mainly fine sand.
13	Clean to dirty sand	5,700	-	-	-	-	-	0.5	1.5	510	Outwash	Mainly fine sand.
14	Clean sand	4,000	-	97	3	-	-	0.5	1.0	410	Outwash	In places up to 10% fine gravel.
15	Sand and gravel	-	-	-	-	-	-	-	40	Fluvial-terrace	Probably similar to deposits 2, 3, 4, and 8.	
16	Clean sand	2,000	-	-	-	-	-	0.5	1.0	2,240	Outwash	Fine to medium sand. Patches of gravel occur on hummocks.
17	Clean sand	600	-	98	2	-	-	0.5	1.0	60	Outwash	Little data available.
18	Clean sand	550	-	-	-	-	-	1.0*	50	Outwash	High water table. Little data available.	
19	Clean sand	730	-	-	-	-	-	1.0*	70	Outwash	No data available.	
20	Clean sand	24,400	-	3	95	2	-	0	2.0	1,390	Outwash	Up to 20% gravel in places.
21	Clean gravelly sand	430	680	37	60	3	-	0.5	1.5	770	Outwash	High water table.
22	Clean gravelly sand	520	930	35	62	3	-	0.5	1.0	150	Outwash	Clasts to 15 cm; dirty in places.
23	Sand and gravel	-	-	-	-	-	-	-	32	Outwash	No information available.	
24	Sand and gravel	-	-	-	-	-	-	-	85	Fluvial-terrace	No information available.	
25	Clean sand	82,000	-	-	-	-	-	0	1.5	16,600	Eolian	Fine sand; high water table.

Deposit Number — Granular deposits shown on this map may have commercial possibilities. That assumption followed from two criteria used in the mapping process: study of the area considered only granular deposits greater than one metre thick, and covering an area more than one hectare, and it only considered deposits where the mineral-aggregate thickness was greater than the overburden thickness. Although the scale of mapping did not permit investigation of all small deposits, many small deposits containing existing pits are indicated.

Material Description — Sand and gravel has a variety of applications, such as concrete for construction, asphalt concrete, subbase and base course aggregate for roads, gravel and sand for road surfaces, and pit run for fill. Gradation, rock hardness, and binding characteristics, are some of the specific qualities that are considered in aggregate towards determining its end use. This map indicates these, and other, geological qualities of the sand and gravel within each deposit, but does not indicate their potential uses. The terms used in the table are defined in the figure below.

Reserves — The method of calculating in cubic metres the aggregate reserves of deposits took four basic steps: First, the area, in hectares, of each deposit was determined using aerial photographs. Second, geological interpretation, sometimes supported by subsurface information, was assumed in determining the geometry of each deposit; to estimate an overall, average deposit thickness in metres. Third, geological study and limited sample analyses determined the texture (gradation) of sediments in the deposit, and an overall average percentage of gravel and sand. Finally, the volume was calculated as follows: reserve gravel (m³) = area (ha) × thickness (m) × 10,000 × % gravel; the same formula was used for sand.

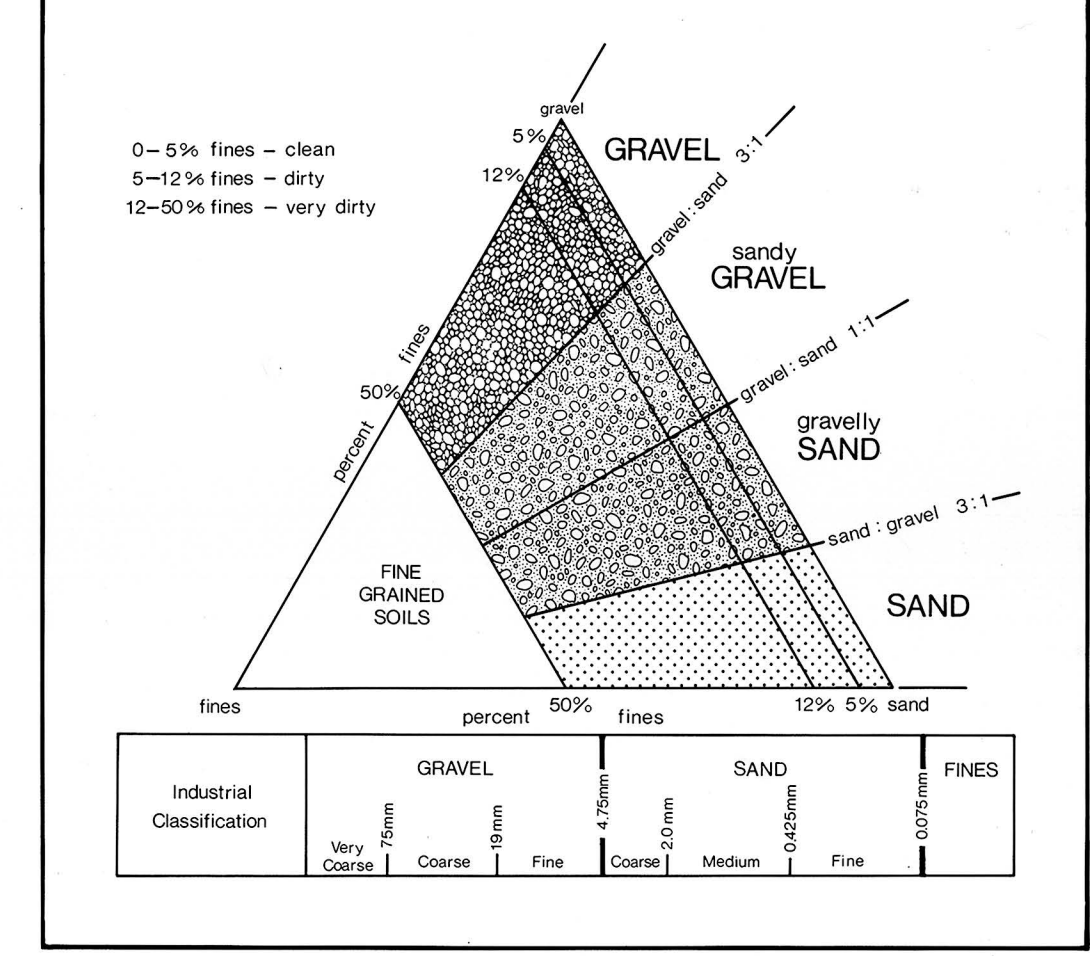
Texture — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the classes and particles in these fractions are given in the figure. The values given for a particular deposit were determined from a field estimate, or from laboratory analysis, of one or more samples from that deposit. Where more than one sample is taken the tabulated number is the mean value.

Wear — The resistance of gravel-size clasts to wear or abrasion can be measured in a laboratory test (ASTM M-131, Los Angeles Abrasion Testing). The amount of material that breaks down into smaller sizes is measured and related to the original sample weight in terms of percent wear. The higher the percentage wear the more susceptible the gravel is to breakdown under stress. Gravel with a percentage wear of less than 40 is considered very resistant.

Overburden Thickness — The thickness of non-economic material, or overburden, covering a deposit, sometimes is a limiting factor in the exploitation of an aggregate deposit. The tabulated values given are approximate overburden thicknesses as determined from geological investigations and subsurface testing.

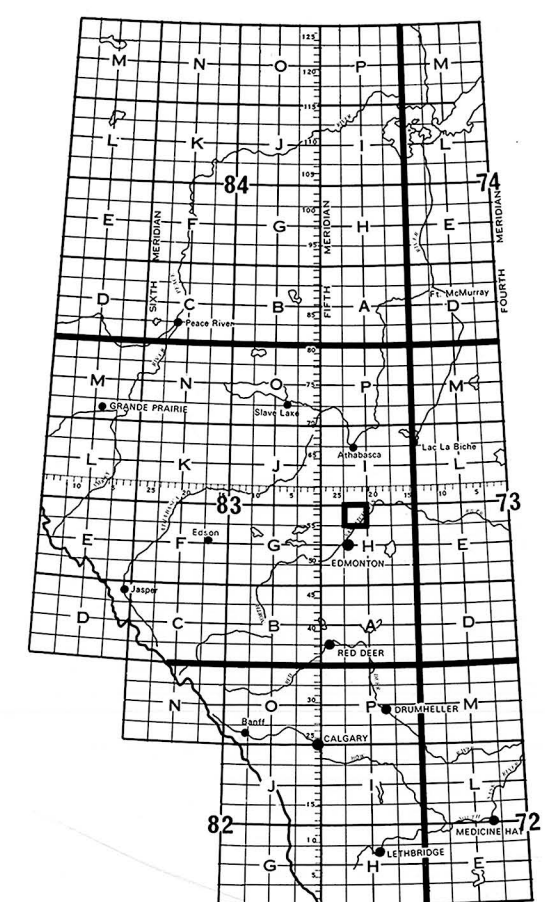
Deposit Area — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

Deposit Genesis — The genesis, or formation, of deposits is vital to the understanding of the gradational nature, extent and geometry of the deposit. This understanding forms the basis for extrapolation from a limited number of known points (test holes, pits, sections) and permits an overall assessment of the deposit.



Map Legend

- 3 Deposit number
- Assumed boundary
- Active or inactive pit
- Alberta Geological Survey test hole
- Sand or gravel exposure
- Buried sand or Gravel deposit



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Alberta Geological Survey

This is a sand and gravel resource map prepared by the Alberta Geological Survey as part of a series at a scale of 1:50,000. The series represents an ongoing aggregate inventory of Alberta which provides data for general land-use planning, land management or aggregate exploration. Please note that the delineation of deposits and calculation of reserves are approximations only.

References:
 Geology and compilation by J.C. Fox, 1979 and 1981. Additional information from L.A. Bayrock, 1972.

AGGREGATE RESOURCES
 REDWATER 83H/14