

GENERAL COMMENTS

DEPOSIT CHARACTERISTICS

Deposit Number	Material Description	Reserves (1000 m³)		Additional Comments	Texture (%)			Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
		Gravel	Sand		Gravel	Sand	Fines					
1	Clean gravelly sand	194	416	High water table.	31	66	3	0.3-3.0	2.0-4.6	30.3	Outwash	No very coarse gravel. + 30% medium sand.
2	Clean sand	61	515	Usable for concrete when screened. Easy access.	10	85	5	0.2	2.0	30.3	Outwash	Only occasional gravel clasts. Principally fine to medium sand.
3	Clean sand	77	300	High water table.	20	75	5	0.5-1.0	2.0	19.3	Outwash Terrace	Principally medium sand. Low percentage of coarse gravel.
4	Dirty, sandy gravel	310	130	Area unexploited.	65	25-30	5-10	0.0	2.0	22.3	Outwash Terrace	Principally coarse gravel. Slightly dirty.
5	Clean gravelly sand	320	350	High water table. Thin, discontinuous.	45	50	5	0.2	1.5	46.6	Outwash	No very coarse gravel. + 2% medium sand.
6	Dirty, gravelly sand	130	400	Localized, discontinuous.	25	65	10	1.0	1.0	46.6	Kame moraine	Principally fine sand. Slightly dirty.

**Deposit Number** — Granular deposits shown on this map may have commercial possibilities. This 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 bedding 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 analysis 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.

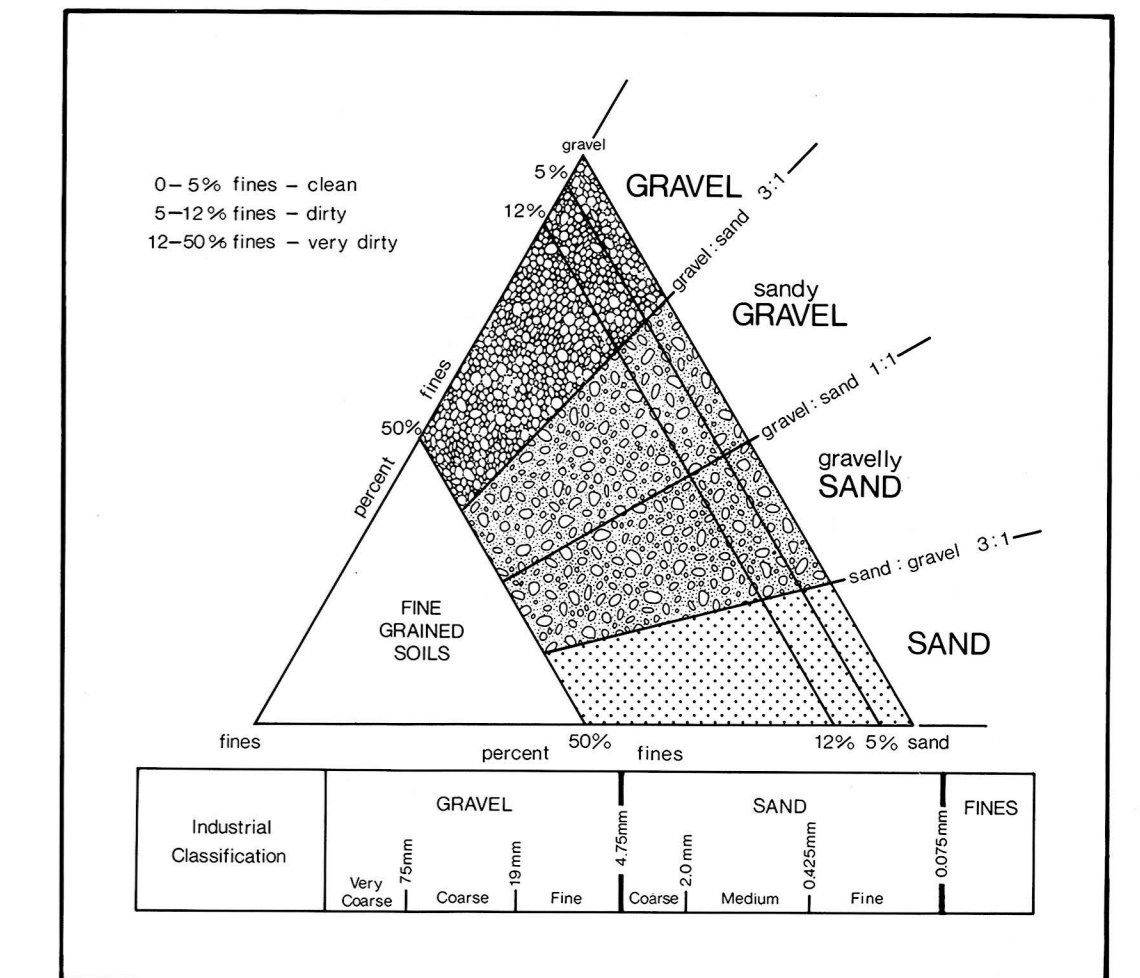
**Texture** — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular 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-C131, 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.

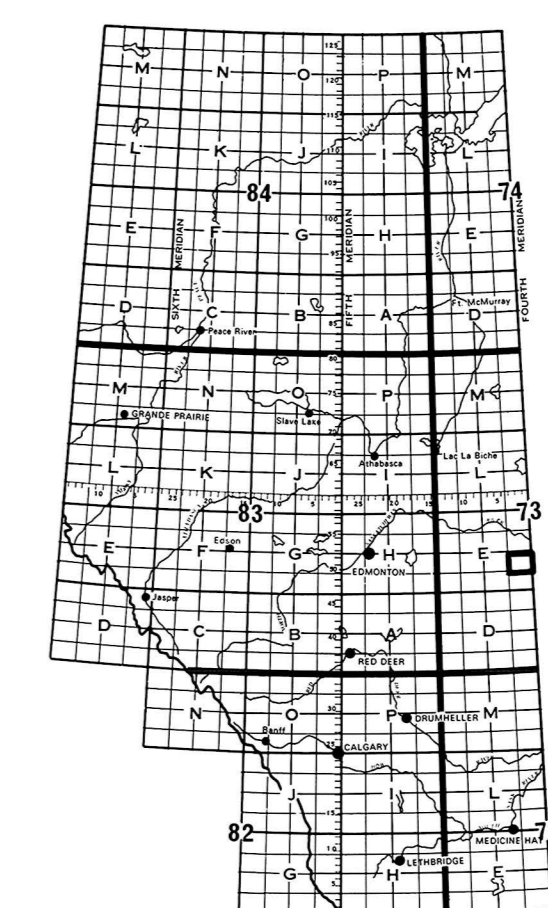
**Deposit Area** — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

**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



Alberta  
RESEARCH COUNCIL  
Natural Resources Division

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 by B.N. Peterson, 1979. Compilation by N.K. Jones, 1980. Additional information from R.B. Elwood, 1980.

**AGGREGATE RESOURCES**  
LLOYDMINSTER 73E/8

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Roads:  
hard surface, all weather  
hard surface, all weather  
loose or stabilized surface, all weather  
loose surface, dry weather and  
undrained streets  
canal  
water portage

Rivers:  
open water, all season  
open water, all season  
open water, all season  
open water, all season  
open water, all season  
open water, all season  
open water, all season

Other features:  
open water, all season  
open water, all season  
open water, all season  
open water, all season  
open water, all season  
open water, all season  
open water, all season

**LLOYDMINSTER**  
ALBERTA-SASKATCHEWAN  
Scale 1:50,000 Échelle

0 1000 2000 3000 4000 Metres  
0 1000 2000 3000 4000 Yards

CONTour INTERVAL: 25 FEET  
Elevation in Feet above Mean Sea Level  
North American Datum 1957  
TRANSVERSE MERCATOR PROJECTION

AGGREGATE RESOURCES: 25 FEET  
Elevation in Feet above Mean Sea Level  
North American Datum 1957  
TRANSVERSE MERCATOR PROJECTION

Basé sur la DIRECTION DES LÉVÉS ET DE LA CARTOGRAPHIE  
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES  
Map à jour à l'aide de photographies aériennes prises en 1976. Vérification  
des coupes en 1976. Dernière mise à jour.

Les coupes sont en vertu des Bureaux des Cartes du Canada,  
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