

Deposit Number	Material Description	Reserves (1000 m <sup>3</sup> )		Additional Comments	Texture (%)			Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
		Gravel	Sand		Gravel	Sand	Fines					
1	Very dirty gravelly sand	80	385	Not concrete quality. Used for local roads, and fill.	15	70	15	1.0	2.5	23.3	Outwash	Well sorted. Small % of fine gravel. Limited extent. Thin.
2	Dirty gravelly sand	130	1000	Less important than deposits #3 and #4. Easy access.	10	80	10	0.0	3.0-5.0	32.8	Outwash Terrace	Principally medium to coarse sand, little gravel. Limited extent. Slightly dirty.
3	Clean sandy gravel	2000	1100	Numerous soft sandstones and siltstone, which lower the quality.	65	30-35	<5	0.2-1.0	3.5	93.2	Lower outwash terrace	Very coarse gravel deposit. Moderate extent.
4	Clean sandy gravel	2900	2500	Used for concrete, and asphalt mixing. Granite and gneiss clasts.	50-55	45	<5	0.0-1.2	3.5-8.0	113.4	Upper outwash terrace	Approximately equal %'s of sand and gravel.
5	Very dirty gravelly sand	2380	3400	High % of deleterious material (coal, soft siltstones and ironstones). Abandoned pit.	35	50	15	0.5	2.5-5.5	196.0	Outwash	Principally coarse sand and fine gravel. Very dirty in places.
6	Dirty sandy gravel	1250	625	High % of deleterious material (soft ironstones, siltstones, and sandstones), lower quality. Good access.	60	30	10	0.8-2.0	4.0	52.9	Lower outwash terrace	Slightly dirty to dirty.
7	Dirty sand and gravel	675	675	Abandoned pit.	45	45	10	0.3	1.0-2.0	103.3	Upper outwash terrace	Slightly dirty to dirty. Poorly sorted. Crystalline clasts.

**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 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 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 (m<sup>3</sup>) = area (ha) × thickness (m) × 10,000 × % gravel; the same formula was used for sand.

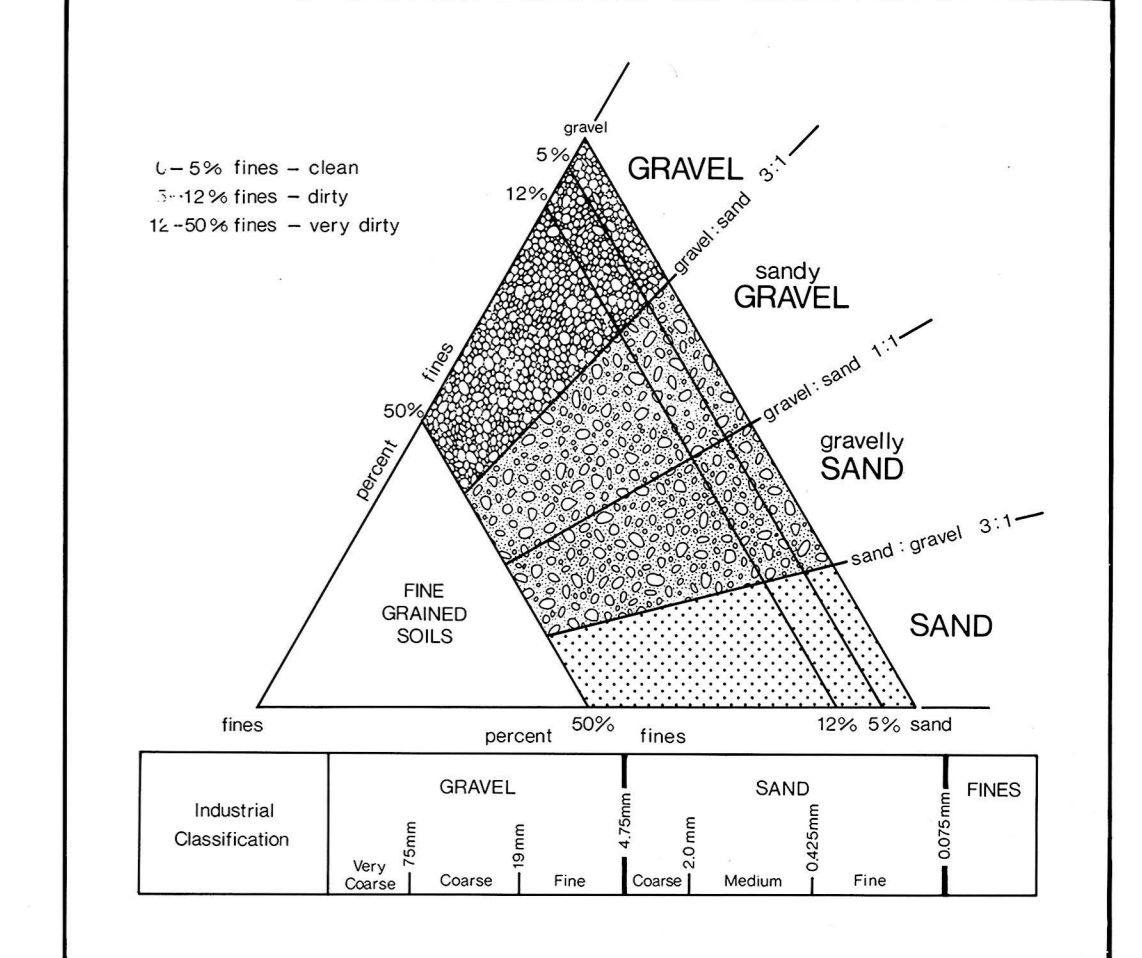
**Texture** — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular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

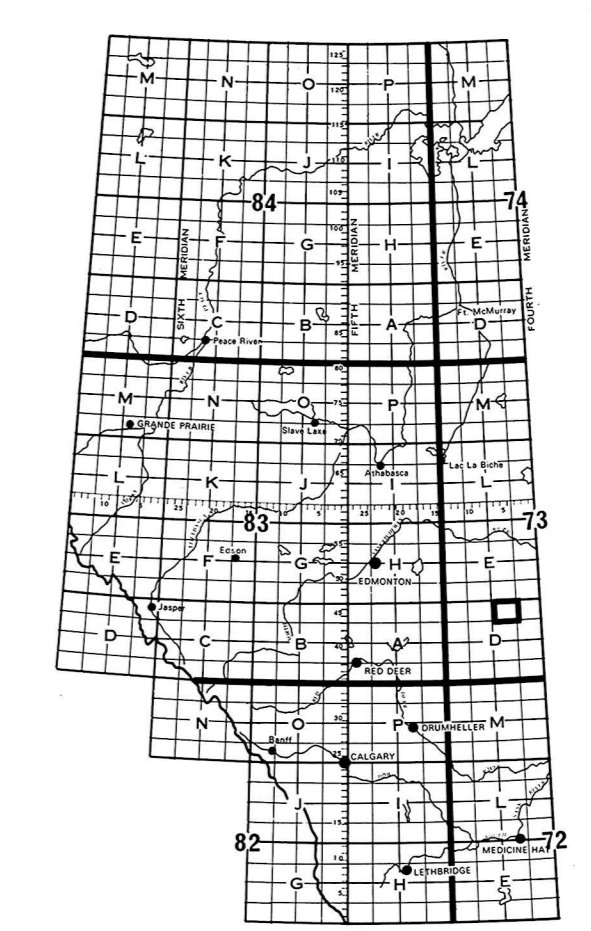
**Overburden Thickness** — The thickness of non-economic material, or overburden, covering a deposit, sometimes is a limiting factor in the exploitation of an aggregate deposit. The tabulated values given are approximate overburden thicknesses as determined from geological investigations and subsurface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



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RESEARCH COUNCIL  
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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 definition of deposits and calculation of reserves are approximations only.

**REFERENCES**  
Geology and compilation by R.K. Jones, 1980. Additional information from L.A. Baycock, 1967.

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WAINWRIGHT 73D/15