

GENERAL COMMENTS

DEPOSIT CHARACTERISTICS

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	Clean sand to clean sandy gravel	152,243	564,164	One of major suppliers of high quality aggregate in Edmonton region; deposit within area classified as restrictive resource conservation by E.R.P.C.	20	78	2	15	15	4836	Fluvial	Central part of deposit contains higher % gravel (60-80%) for sections, individual beds 70-80%; recoverable reserves estimated by gravel operators (1977) to be 5 million tons per quarter section of land. 24.4 million tons gravel (87.5 million M <sup>3</sup> ) were estimated to underlie land assembled for gravel extraction; (1) 251.2 million tons Preglacial aggregate reported in area.
2	Clean gravelly sand	900	1,950	Deformed lenses of gravel in this area are difficult to delineate and extract; area shown is approximate.	30	65	5	2	3	490	Glacially thrust and glaciofluvial	Western part of area contains thrust gravel lenses with overburden cover; eastern part has meltwater channel deposits — no overburden.
3	Clean sand	19,000		Sand ranges from fine to coarse grained; overburden may be restrictive in southern part of area.	97	3		2	8	244	Lacustrine	
4	Clean sand	29,072	108,020	Severe water table and overburden problems plus fine grained nature make development unlikely.	20	75	5	12	23	632	Fluvial	Part of Beverly Preglacial channel.
5	Clean sand	1,960		Delineation of deposit approximate only — reserves and thickness may be considerably less.	98	2		2	10	20	Ice-contact	
6	Clean sandy gravel	116	80	Delineation approximate; discontinuous nature of gravel makes development difficult.	58	40	2	1.5	1	20	Ice-contact	May be kame or glacially thrust gravel.
7	Clean sandy gravel	180	173	Gravel probably discontinuous; delineation and reserve calculations therefore approximate.	50	48	2	1	3	12	Glacially thrust and ice-contact	
8				No data available — potential similar to 5, 6 and 7.							Ice-contact	

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

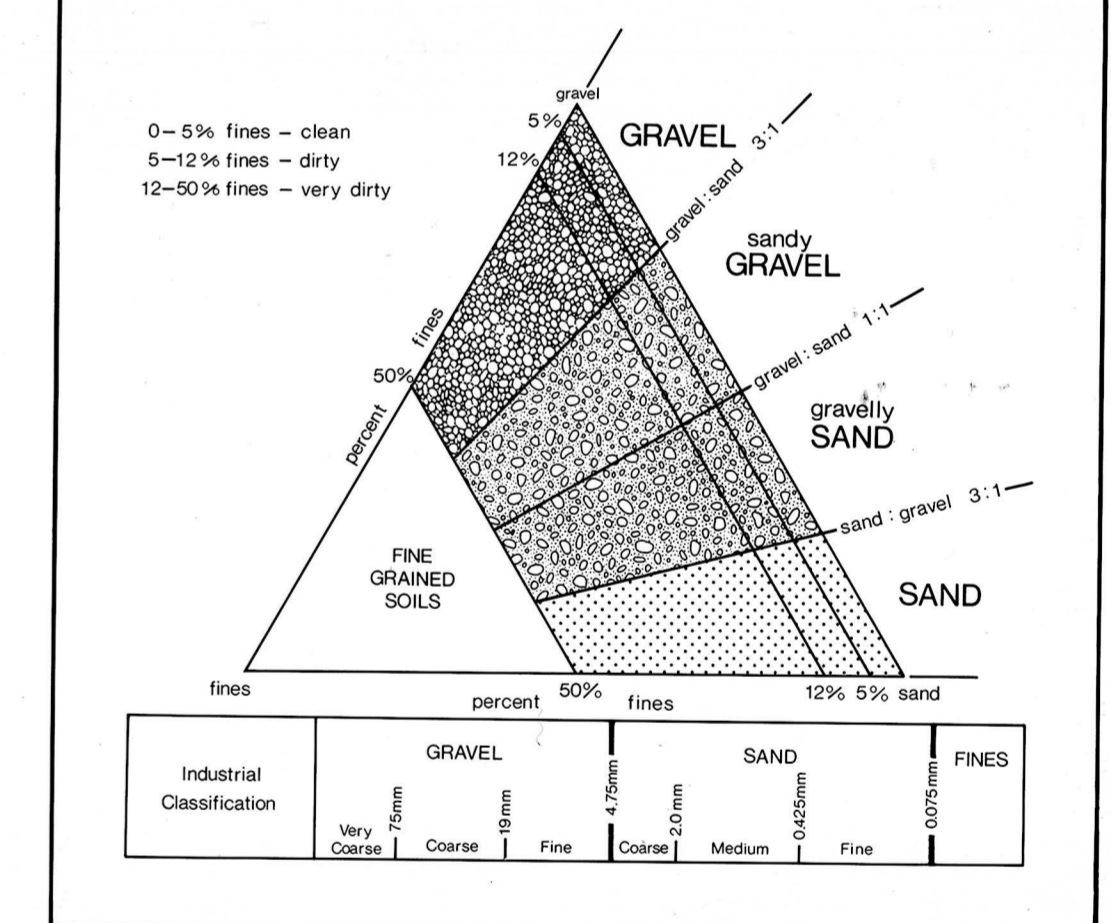
**Texture** — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular 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-C119, 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.

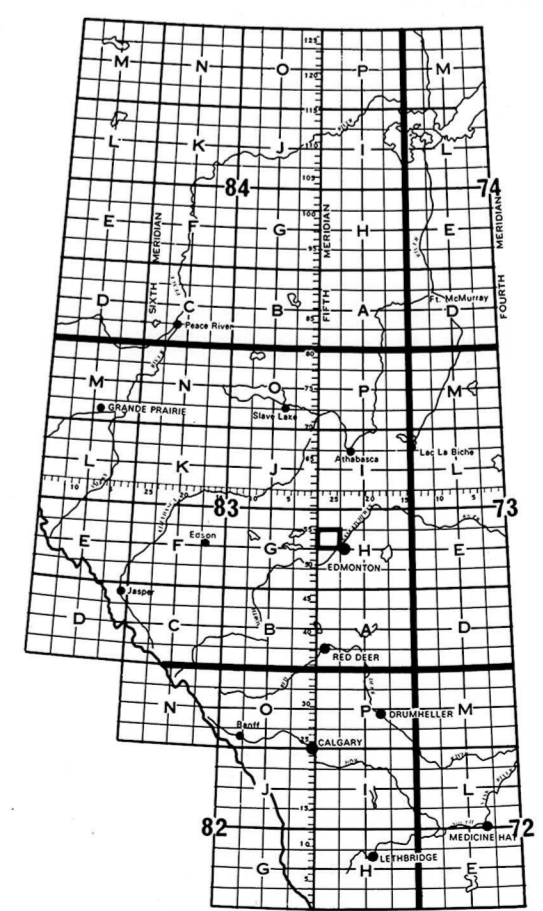
**Deposit Area** — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

**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
- x Active or inactive pit
- o Alberta Geological Survey test hole
- ▲ Sand or gravel exposure
- ▨ Buried sand or Gravel deposit



Produced, 1971, by the SURVEY'S AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND REVENUE, from detailed maps compiled from aerial photographs taken in 1965. Corrections 1972. Printed 1974.

Hard surface, all weather	Routes	Oil pipelines	Canadian Zone
—	—	—	—
Hard surface, all weather	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

**ST ALBERT**  
ALBERTA  
WEST OF FOURTH MERIDIAN - OUEST DU QUATRIEME MERIDIEN  
Scale 1:50,000 Echelle

CONTOUR INTERVAL: 25 FEET  
Elevations in Feet above Mean Sea Level

EGALISEMENTS DES COUBRES: 25 PIEDS  
Elevations en Pieds au-dessus du Niveau Moyen de la Mer

Revue en 1971, par la BRANCH DES SURVEILLANCES ET DES CARTOGRAPHES, DU MINISTRE DE L'ENERGIE, DES MINES ET DES REVENUES, à partir de cartes détaillées compilées à partir de photographies aériennes prises en 1965. Corrections 1972. Imprimé en 1974.

Revisado en 1971, por el BRANCO DE ENCUESTAS Y DE CARTOGRAFIA, DEL MINISTERIO DE ENERGIA, MINAS Y REVENUES, a partir de mapas detallados compilados a partir de fotografías aéreas tomadas en 1965. Correcciones 1972. Impreso en 1974.



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 exportation. Please note that the delineation of deposits and calculation of reserves are approximations only.

REFERENCES

Geology and compilation by W.A.D. Edwards, 1979. Additional information from Boyack, 1972; Carlson, 1967; City of Edmonton, 1978; Kathol and McPherson, 1978; McPherson and Kathol, 1972; Shelly and Associates Ltd., 1977.

AGGREGATE RESOURCES

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