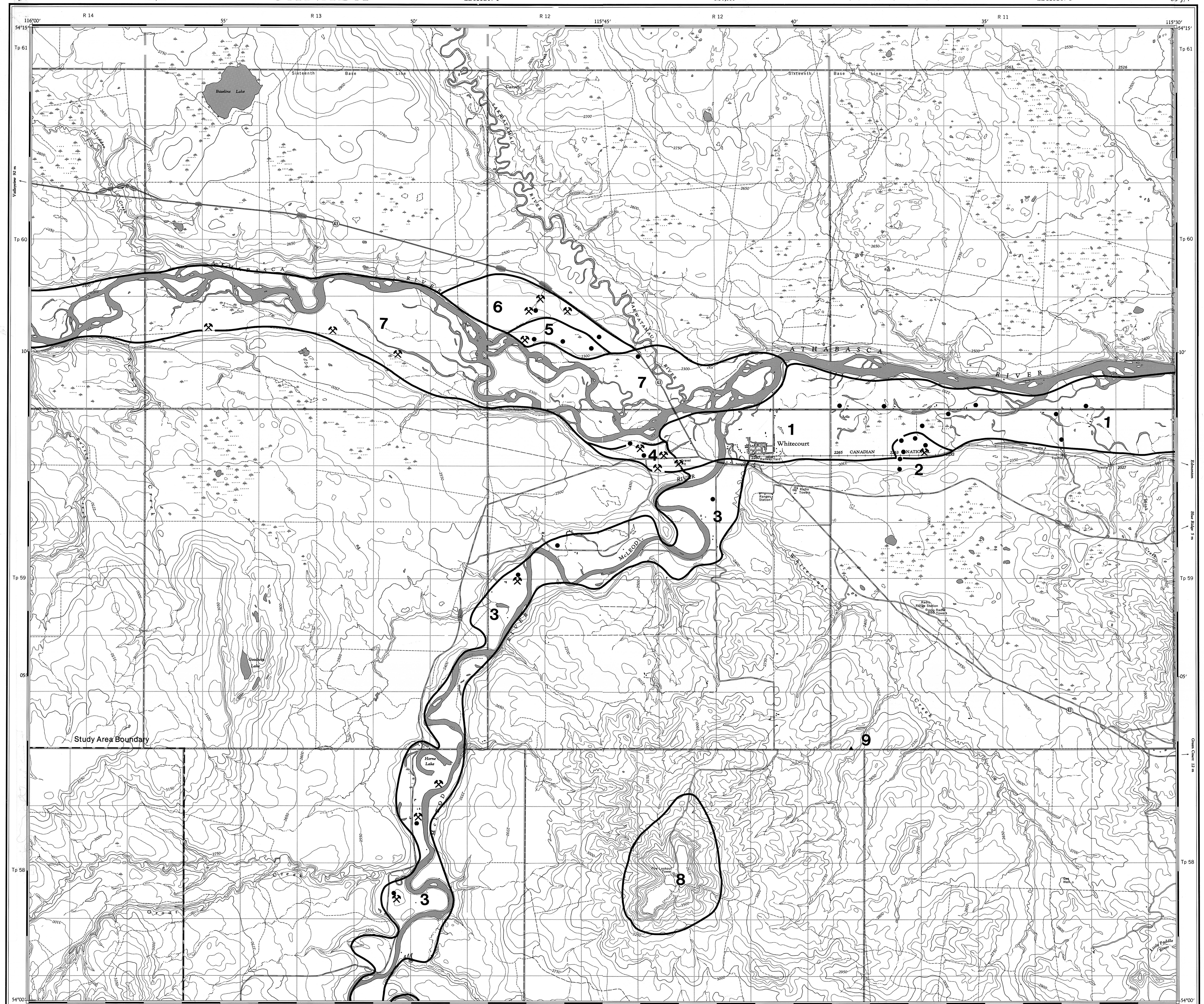
WHITECOURT 83 J/4

83 J/4 1:50,000 CANADA EDITION 1 1:50,000 EDITION 1 83 J/4



Produced and printed by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1960, from air photographs taken in 1954.
Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

WHITECOURT

ALBERTA

WEST OF FIFTH MERIDIAN OUEST DU CINQUIÈME MÉRIDIEN

SCALE 1:50,000 ÉCHELLE

Établie et imprimée par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DES MINES ET DES RELEVÉS TECHNIQUES en 1960, d'après les photographies aériennes prises en 1954.
Ces cartes sont en vente au Bureau de distribution des cartes, Ministère des Mines et des Relevés techniques, Ottawa.

Roads: / Routes:
hard surface, all weather ... pavée, toute saison ... more than 2 lanes / plus de 2 voies; 2 lanes / 2 voies
hard surface, all weather ... pavée, toute saison ... less than 2 lanes / moins de 2 voies
loose surface, all weather ... de gravier, toute saison ... 2 lanes or more / 2 voies ou plus; less than 2 lanes / moins de 2 voies
loose surface, dry weather ... de gravier, période sèche
cart track ... de terre

GENERAL COMMENTS | DEPOSIT CHARACTERISTICS

Deposit Number	Material Description	Reserves (1000 m³) Gravel	Reserves (1000 m³) Sand	Additional Comments	Texture (%) Gravel	Texture (%) Sand	Texture (%) Fines	(%) Wear	Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
1	Clean gravel	110,000	29,000	Coarse quartzite gravel. A few fine grained sand beds and zones of sandy gravel also present. High water table may be a restriction to the exploitation of the granular material.	75-80	20-25	–	–	3	5.5	2688	Alluvial floodplain	Deposit extends into NTS 83J/3. The granular material rests on bedrock.
2	Clean gravel to sandy gravel	>2,300	>500	Fine grained sand beds 2 to 5 m thick occur within gravel. Water table at 6 m. Over half the deposit is below water table.	77	>10	?	–	3 to 4 (in northern part)	12	80	Erosional remnant about 4 to 5 m above floodplain	Maximum clasts size is 20 cm in diameter. Siltstone bedrock underlies the granular material.
3	Clean sandy gravel	28,400	11,200	These deposits are more desirable than the Athabasca R. deposits because of the high percentage of fine gravel and medium to coarse sand present. High water table characterizes these floodplain deposits. Objectionable amounts of silt may be present at some locations.	71	28	1	–	Up to 1.5	4.5	2550	Alluvial terrace	The granular material overlies till in the south and rests directly on bedrock in the northern part of this area. Predominantly subrounded quartzite clasts, with up to 10% subangular, granitic clasts of Precambrian Shield origin.
4	Clean gravel	1,600	360	This deposit has supplied granular material to the surrounding area since it was first settled.	80	18	2	–	0	5 to 10	124	Alluvial low terrace	Coarse quartzite gravel with up to 25% fine sand. Deposit lies directly on siltstone bedrock.
5	Clean gravel	14,000	3,200	Only one pit has been developed to date but with a water table below 6 m it is a likely area for further development.	80	18	2	–	0	10	180	Alluvial low terrace	Gravel composed predominantly of quartzite clasts with a minor amount of hard sandstone clasts and an occasional granitic clast.
6	Clean gravel to sandy gravel	16,000	3,600	Reserves may double if the western portion of the area proves to be similar to eastern part. Area well drained. Discontinuous seams of fine grained sand up to 2 m thick and silty sand seams up to 1.5 m thick are present within deposit.	80	18	2	–	1	Up to 20	520	Alluvial high terrace	Gravel composed predominantly of subrounded quartzite clasts with minor durable sandstone and carbonate clasts and occasional granitic clasts.
7	Clean gravel	Over 100,000		Bulk of material below water table. Deposits of granular material 1 to 2 m above surrounding floodplain are present throughout the area. Exploitation of these could be economical for short haul local uses.	–	–	–	–	–	?	3317	Alluvial floodplain	Most of material probably coarse gravel. Deposit includes all of the floodplain of the Athabasca River west of Whitecourt (within study area) and extends in NTS 83K/1.
8	Dirty to very dirty sandy gravel	–	–	Upper part of Whitecourt Mountain. Due to discontinuous nature of the deposit and the high proportion of fines, this area is expected to be useful only for the maintenance or construction of local roads.	~65	~25	~10	–	0	Up to 3	829	Fluvial	Predominant gravel size material is subrounded to rounded quartzite clasts. Tertiary age deposit.
9	Clean gravelly sand	–	–	Roadcut exposure of outwash material. Not thought to have a significant areal extent. This type of deposit would be ideal for the production of fine aggregate for concrete if a large enough volume of the material could be proven.	40	57	3	–	–	–	?	Outwash	Contains 24% fine gravel, 17% coarse sand and 30% medium sand.

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 (m^3) = area (ha) × thickness (m) × 10,000 × % gravel; the same formula was used for sand.

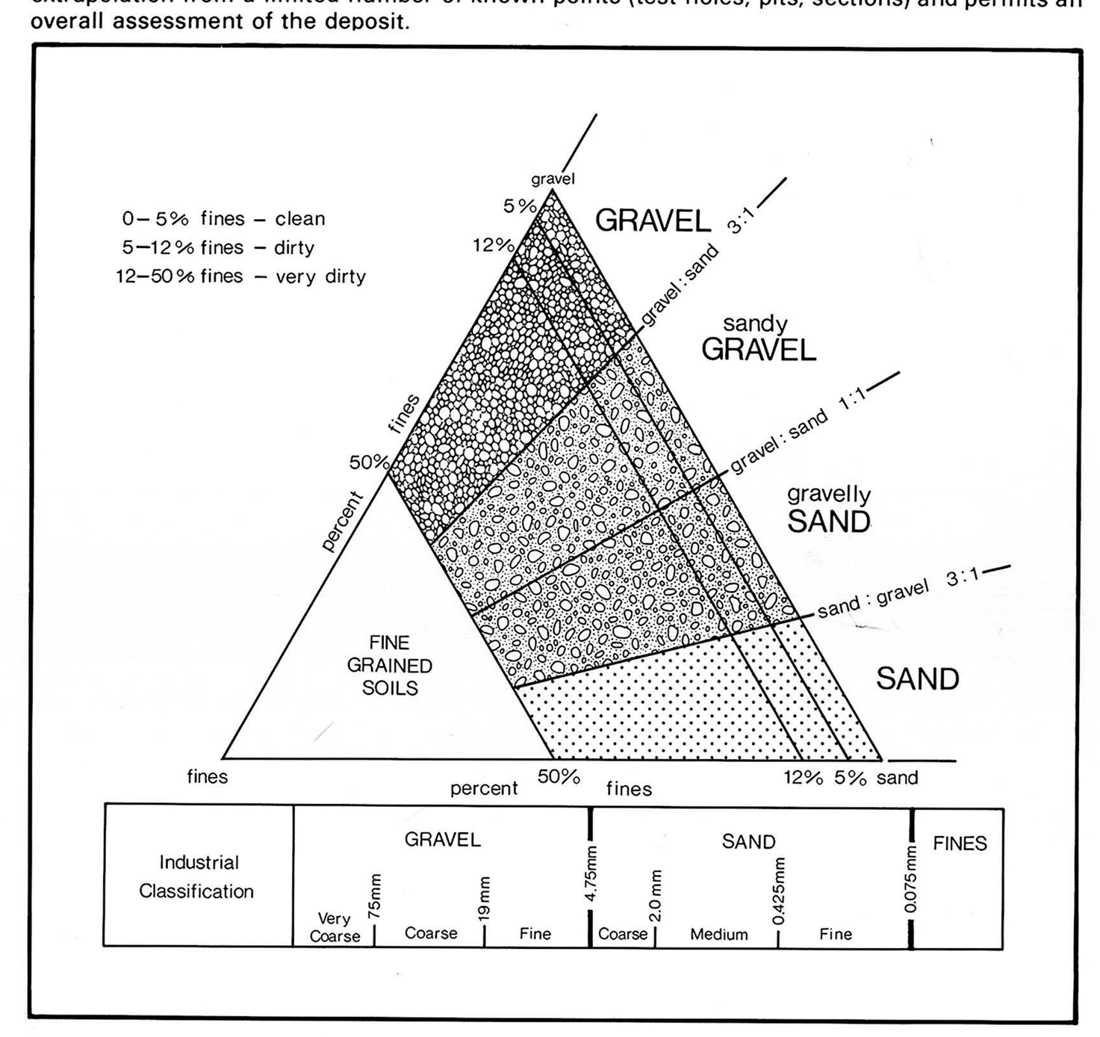
Texture — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular deposit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

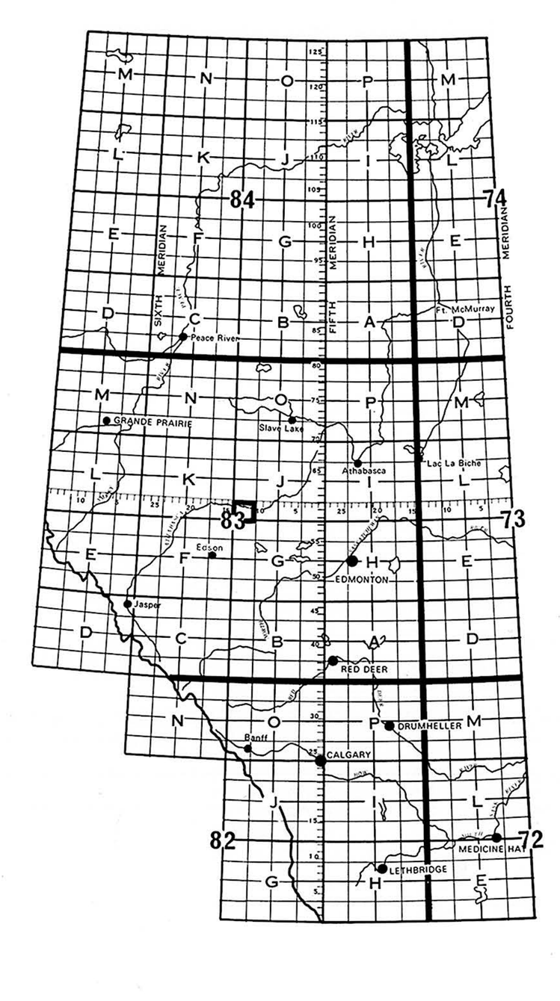
Deposit Area — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

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



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. Alberta Energy and Natural Resources provides financial support for the Aggregate Inventory.

REFERENCES

Geology by B.N. Peterson, 1978. Compilation by W.A.D. Edwards and M. Price 1982. Additional information from D.A. St. Onge, 1975.

AGGREGATE RESOURCES

WHITECOURT 83J/4