

Sand and Gravel Resources of the Wapiti Map Area (NTS 83L)

North American Datum 1983 Transverse Mercator Projection

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Aggregate Map Definitions Of Headings And Terms

Areas delineated on the map are potential sources of sand and/or gravel. Each potential deposit is labelled with an unique, four digit number (ID). This ID number is used to relate deposit location and area information from the map with the deposit properties described in the legend.

The possibility of finding granular material in economic quantity is estimated for each area. This possibility is expressed in the legend as one of three categories: Confirmed resources, and Unsubstantiated resources. These resource categories are defined as follows:

Prospective resource - Areas are placed in this category if over one metre thickness of sand and/or gravel is confirmed in at least one site. Estimates of quantities are approximate as compared to the measured (Confirmed) resource volumes. Prospective resource areas are good targets for more detailed mineral aggregate Unsubstantiated resource - Areas are placed in this category if granular potential is indicated based on very limited information. Unsubstantiated resource areas should be treated as resources for future study.

depth determined from a grid of testholes, the digital area shown on the map, and a material character determined from multiple grain size analyses. Gravel is defined as material < 4.75 mm and > 0.75 mm. Volumes listed for Prospective resources are calculated from a depth at

Confirmed resource - Areas are placed in this category if sand and/or gravel occurs in sufficient quantity for exploitation under favourable marketing and land use management conditions. Information about the deposit is adequate for developing a pit plan or to support detailed resource management and strategic planning.

one or more testholes or exposures, the digital area shown on the map, and one or more sample analyses. Note that volume calculations reflect the situation at the time when the data were current. Quantity estimates generally are inappropriate for areas identified under the heading Unsubstantiated resources. Quantity composition, and the digital area shown on the map. These geological assumptions require the correct identification of deposit genesis and more completely known, neighbouring deposits of the same origin. Overburden Thickness (metres) Overburden is material, such as soil, clay, silt, or till, which covers a sand and gravel deposit and is not a source of mineral aggregate. An average thickness calculated from multiple sites is reported for deposits studied at levels 1 or 2. The thickness measured at a single or several sites is

reported for areas studied at level 3. At study levels 4 and 5 there is no direct evidence of overburden thickness. If an overburden thickness is reported it is based on geological assumptions.

Sand & Gravel Thickness (metres) Sand and/or gravel thickness is an average established from multiple testholes if the deposit is studied at study level 3. Deposit thickness is assumed from geological interpretation if the deposit is studied at study levels 4 or 5.

Deposit Area (hectares) Deposit area is the surface area of the deposit as shown on this map and calculated from the digital data

Study Level The study level describes the intensity of investigation or detail of mapping by the Alberta Geological Survey. Five levels of investigation of sand and gravel deposits are defined as follows: Level 1- A very detailed investigation of all or part of a deposit and includes a grid of testholes and multiple sample analyses. This level of study is adequate to locate and define sufficient quantities and kinds of aggregate for economic development of the deposit and can provide an accurate base of information for Level 2 - A detailed investigation of a deposit that includes multiple testholes and sample analyses. This level of study establishes continuity of the granular materials and confirms the economic viability of a deposit. Study level 2 information can provide an accurate base of information for resource or land use Level 3 - An investigation which confirms (testhole, natural or pit exposure) the presence of sand and/or gravel over 1 m thickness. The distribution of sand and/or gravel may be extrapolated or estimated but economic viability is not confirmed without further testing. A deposit identified at study level 3 is a good target for mineral aggregate exploration and provides a regional context for managing the aggregate resource.

Level 4 - An investigation based on very limited, surface information or indirect evidence (airborne reconnaissance, remote sensing data) supported by evidence of granular occurrence in a neighbouring deposit of similar origin. This level of study provides a regional perspective on the potential for aggregate resources

and may be useful in land use management or for exploration in remote regions. Level 5 - Information derived through remote sensing or indirect evidence only. No field checking or sampling is undertaken. At this level, sites with potential for sand or gravel are delineated but the presence of granular materials is unconfirmed. Information at this level provides a starting point for gravel searches and gives some indication of granular potential in unexplored regions.

Source Sources of data for the area are listed. In some cases government departments other than the Alberta Geological Survey or industry may be sources of information.

Genesis The genesis of the deposit is postulated. Genesis can be a useful guide to understanding the composition and geometry of a deposit and the regional distribution of deposits. The terms used to describe the deposits are commonly used in Alberta. Reference Any published sources of information on the deposit are listed.

Deposit ID Number	Resource Category	Gravel (m³)	Sand and Gravel (m³)	Sand (m³)	Overburden Thickness (m)	Sand and Gravel Thickness (m)	Area (ha)	Study Level	Source	Genesis	Referenc
3000 3001	Unsubstantiated Unsubstantiated		?		1.5	1.0	37.8 35.5	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3002 3003	Unsubstantiated Unsubstantiated		?		1.5	1.0	53.2 42.3	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3004	Unsubstantiated Unsubstantiated		?		2.0	1.0	120.0	4	AGS	fluvial, high terrace, Smoky R. fluvial, high terrace, Smoky R.	16a
3006	Unsubstantiated		?		1.5	1.0	33.7 71.3	5	AGS	fluvial, low terrace, Smoky R.	16a 16a
3007	Unsubstantiated Unsubstantiated		?		1.5	1.0	82.9	5	AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a
3009	Unsubstantiated Unsubstantiated		?		1.5	1.0	39.9	4	AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3011 3012	Unsubstantiated Unsubstantiated		?			_	10.2 167.1	5 5	AGS AGS	fluvial, intermediate terrace, Smoky R. fluvial, high terrace, Smoky R.	16a 16a
3013 3014	Unsubstantiated Unsubstantiated	2	?				79.8 39.2	5	AGS	fluvial, high terrace, Smoky R. fluvial, intermediate terrace, Smoky R.	16a 16a
3015 3016	Unsubstantiated Unsubstantiated		?				18.5 36.1	5	AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3017	Unsubstantiated Prospective	*	?			4.0	48.3	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, high terrace, Smoky R.	16a 16a,8b
3019	Unsubstantiated	,				4,0	7.4	5	AGS	fluvial, low terrace, Smoky R.	16a
3020 3021	Unsubstantiated Unsubstantiated	,	*				25.1	5 4	AGS	fluvial, low terrace, Smoky R. fluvial, intermediate terrace, Smoky R.	16a 16a
3022 3023	Unsubstantiated Prospective	?					22.6 10.6	5 4	AGS AGS	fluvial, intermediate terrace, Smoky R. fluvial, intermediate terrace, Smoky R.	16a 16a
3024 3025	Prospective Prospective	?					14.3 5.8	3	AGS AGS	fluvial, intermediate terrace, Smoky R. fluvial, intermediate terrace, Smoky R.	16a 16a
3026 3027	Confirmed Confirmed	* partially depleted * mostly depleted			~2	~3 3.0	50.7 3.6	3	AGS, ATU	fluvial, high terrace, Smoky R. fluvial, high terrace, Smoky R.	16a 16a
3028	Unsubstantiated	*	?		×	0.0	20.4	5.	AGS	fluvial, high terrace, Smoky R.	16a
3029 3030	Unsubstantiated Unsubstantiated	*					19.5	5	AGS AGS	fluvial, high terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3031	Unsubstantiated Unsubstantiated					3	16.7 11.7	5 5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3033 3034	Unsubstantiated Unsubstantiated						12.3 3.5	5	AGS AGS	fluvial, intermediate terrace, Smoky R. fluvial, intermediate terrace, Smoky R.	16a 16a
3035 3036	Unsubstantiated Unsubstantiated						3.6 6.0	5	AGS AGS	fluvial, intermediate terrace, Smoky R. fluvial, high terrace, Smoky R.	16a 16a
3037	Prospective	* mostly depleted				2.5	20.9	- 4	AGS	fluvial, high terrace, Smoky R.	16a
3038 3039	Unsubstantiated Unsubstantiated						15.0 15.5	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3040 3041	Unsubstantiated Unsubstantiated	н д.					17.7 50.1	5 5	AGS AGS	fluvial, intermediate terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3042 3043	Unsubstantiated Unsubstantiated	-	ā				39.3 75.8	5 5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3044 3045	Unsubstantiated Unsubstantiated	2					153.2 101.6	4 5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a
3046	Unsubstantiated	?					51.1	4	AGS	fluvial, high terrace, Smoky R.	16a
3047 3048	Unsubstantiated Unsubstantiated			A	= 2		114.5 68.4	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3049 3050	Unsubstantiated Unsubstantiated						81.6 133.7	4 5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3051 3052	Unsubstantiated Prospective			*	1.5	25.0	14.4 138.0	5	AGS	fluvial, intermediate terrace, Smoky R. fluvial, high terrace, Smoky R.	16a 16a
3052 3053 3054	Unsubstantiated Prospective	*			1.0	4.0	56.7 35.5	5 4	AGS AGS	fluvial, high terrace, Smoky R. fluvial, high terrace, Smoky R. fluvial, high terrace, Smoky R.	16a 16a
3055	Prospective	*			1.0	2.0	73.5	4	AGS	fluvial, low terrace, Smoky R.	16a
3056 3057	Unsubstantiated Unsubstantiated						51.5 73.8	5 5	AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3058 3059	Unsubstantiated Unsubstantiated						5.1 97.3	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, high terrace, Smoky R.	16a 16a
3060 3061	Unsubstantiated Unsubstantiated						24.1	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a
3062	Unsubstantiated						62.2	5	AGS	fluvial, low terrace, Smoky R.	16a
3063 3064	Unsubstantiated Unsubstantiated						48.4	5	AGS AGS	fluvial, high terrace, Smoky R. reworked preglacial	16a 16a
3065 3066	Unsubstantiated Unsubstantiated						14.5 38.4	5	AGS AGS	ice contact-dune	16a 16a
3067 3068	Unsubstantiated Unsubstantiated			,		<	47.7 26.0	5 5	AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3069	Unsubstantiated						40.4	5	AGS	fluvial, low terrace, Smoky R.	
3070 3071	Unsubstantiated Unsubstantiated	,					17.8 16.2	5	AGS AGS	fluvial, low terrace, Smoky R. fluvial, low terrace, Smoky R.	16a 16a
3072 3073	Unsubstantiated Prospective		^		*,		19.6	4	AGS	fluvial, low terrace, Smoky R. valley fill-fluvial?, intermediate terrace, Smoky R.	16a 16a
3074 3075	Unsubstantiated Unsubstantiated				×		10.1	5	AGS AGS	fluvial, high terrace, Smoky R. fluvial, point bar, low terrace, Smoky R.	16a
3076 3077	Unsubstantiated Unsubstantiated						30.0 5.9	5	AGS AGS	fluvial, low-intermediate terrace, point bar, Smoky R. fluvial, intermediate-high terrace, point bar, Smoky R.	16a 16a
3078 3079	Unsubstantiated Unsubstantiated						7.8	5	AGS	fluvial, high terrace, point bar, Smoky R. fluvial, point bar, low terrace, Smoky R.	16a 16a
3080	Prospective	?					53.2	4	AGS	fluvial, intermediate terrace, point bar, Smoky R.	16a
3081 3082	Unsubstantiated Prospective	?					23.7 43.4	5 4	AGS AGS	fluvial, point bar, low terrace, Smoky R. fluvial, intermediate terrace, point bar, Smoky R.	16a 16a
3083 3084	Unsubstantiated Unsubstantiated				(4)	,	17.7 16.0	5 5	AGS AGS	fluvial?, low terrace, Smoky R. fluvial, intermediate terrace, point bar, Smoky R.	16a 16a
3085 3086	Prospective Unsubstantiated	*	×				67.4 7.0	4 5	AGS AGS	fluvial, high terrace, point bar, Smoky R. fluvial, point bar, low terrace, Smoky R.	16a 16a
3087 3088	Unsubstantiated Confirmed	ate a satisfic also take a				3.0	44.0 149.7	4	AGS AGS, ATU	fluvial?, low terrace, Smoky R. fluvial?, intermediate terrace, Smoky R.	16a 16a
3089	Unsubstantiated	* partially depleted				3.0	134.9	5	AGS	fluvial, high terrace, point bar, Smoky R.	16a
3090 3091	Unsubstantiated Unsubstantiated		ALL STATES				57.8 127.7	5	AGS AGS	fluvial, channel fill?, intermediate terrace, Smoky R. fluvial, channel fill, intermediate-high terrace, Smoky R.	16a 16a
3092 3093	Unsubstantiated Unsubstantiated						28.5 77.3	5 5	AGS AGS	fluvial, channel fill?, low terrace, Smoky R. fluvial, channel fill?, intermediate terrace, Smoky R.	16a 16a
3094 3095	Prospective Unsubstantiated						248.6 65.2	4 5	AGS AGS	fluvial, channel fill?, intermediate terrace, Smoky R. channel fill, fluvial, high terrace, Smoky R.	16a 16a
3096 3097	Unsubstantiated Unsubstantiated						64.7	5	AGS	fluvial?, intermediate terrace, Smoky R. fluvial terrace? (Smoky R.) or landslide?	16a 16a
3098	Unsubstantiated						196.7	5	AGS	fluvial terrace? (Smoky R.) or landslide?	16a
3099 3100	Unsubstantiated Unsubstantiated		- 1				57.9 132.4	5 5	AGS AGS	bedrock or depositional terrace?, Smoky R. bedrock or depositional terrace?, Smoky R.	16a 16a
3101 3102	Unsubstantiated Unsubstantiated			2			20.4 78.3	5 5	ĄĢS AGS	valley fill-fluvial?, intermediate terrace, Smoky R. valley fill-fluvial?, intermediate terrace, Smoky R.	16a 16a
3103 3104	Unsubstantiated Unsubstantiated						37.9 36.2	5	AGS AGS	delta reworked by Smoky R. valley fill-fluvial?, intermediate terrace, Smoky R.	16a 16a
3105	Unsubstantiated						20.5	5 5	AGS AGS	valley fill-fluvial?, intermediate terrace, Smoky R.	16a
3106	Unsubstantiated Unsubstantiated						92.2	5	AGS	valley fill, fluvial, high terrace, Smoky R. delta reworked by Smoky R. or fluvial, low terrace?	16a 16a
3108 3109	Unsubstantiated Unsubstantiated			Ty	.9		25.5 26.5	5 5	AGS AGS	valley fill or fluvial?, intermediate terrace, Smoky R. valley fill, fluvial, high terrace, Smoky R.	16a 16a
3110 3111	Unsubstantiated Unsubstantiated						41.0 20.3	5 5	AGS AGS	bedrock or valley fill terrace?, Smoky R. delta reworked by Smoky R.	16a 16a
3112 3113	Unsubstantiated Unsubstantiated		1	?	κ.		40.5 84.1	5	AGS	delta (Norris Ck.) reworked by Smoky R. ice contact?	16a 16a
3114	Unsubstantiated Unsubstantiated		A . * **	15.			34.2	5	AGS	ice contact? valley fill, fluvial, high terrace, Smoky R.	16a
3116	Unsubstantiated					(46.3	5	AGS	fluvial, point bar, low terrace, Smoky R.	16a
3117	Unsubstantiated Unsubstantiated						22.5 78.7	5	AGS AGS	fluvial, intermediate terrace, point bar, Smoky R. fluvial, point bar, low terrace, Smoky R.	16a 16a
3119 3120	Unsubstantiated Unsubstantiated						22.2 140.8	5	AGS AGS	fluvial, intermediate terrace, point bar, Smoky R. fluvial, high terrace, Smoky R.	16a 16a
3121 3122	Unsubstantiated Unsubstantiated						63.9 138.0	5	AGS AGS	delta, Wanyandie Ck. fluvial, low terrace, Smoky R.	16a 16a
3123	Confirmed Unsubstantiated		* mostly depleted				111.6 45.3	4 5	AGS AGS	delta reworked by Smoky R. delta reworked by Smoky R.	16a 16a
3125	Confirmed	* partially depleted				:	6.8	4	AGS	pitted outwash, Sheep Ck.	16a
3126 3129	Prospective Unsubstantiated		*				77.9 82.7	5	AGS AGS	pitted outwash, Sheep Ck. ice contact, valley fill, Sheep Ck.	16a 16a
3130 3131	Unsubstantiated Unsubstantiated						4.5 34.3	5 4	AGS AGS	ice contact, valley fill, Sheep Ck. ice contact, valley fill, Sheep Ck.	16a
3132 3133	Prospective Unsubstantiated		*				34.3 5.4	4 5	AGS	valley fill, Muskeg R. valley fill, Muskeg R.	16a 16a
3136	Confirmed	* mostly depleted		-	240.0	0.	32.2	4	AGS	valley fill, Muskeg R.	16a
3137 3138	Unsubstantiated Unsubstantiated	*	*		2 to 6	3+ 10+	84.0 15.3	4	AGS AGS	fluvial, low terrace, Smoky R. valley train, terrace, Smoky R?	16a 16a
3139 3141	Prospective Unsubstantiated			*	1		11978.1 29.2	5	AGS AGS	eolian dunes fluvial, floodplain-low terrace, Simonette R.	16a 16a
	Unsubstantiated						36.1	5	AGS	fluvial, floodplain-low terrace, Simonette R.	16a
3142 3143	Unsubstantiated				1		25.4	5	AGS	fluvial, floodplain-low terrace, Simonette R.	16a

16a = Richardson, R.J.H. 1983. Aggregate resources of the Wapiti map area, 83L. ARC Open File Map 1983-17, 1:250,000 map. 16b = Townsend, H.R. 1997. Getting to the bottom of the Wapiti River (A report on sand and gravel activities in and around the Wapiti River of Alberta). Environmental Protection. 8a = Peterson, B.N. 1980. Sand and gravel resources of the Grande Prairie area, Alberta. ARC Open File Report 1980-9.

1148.1 4 AGS fluvial, floodplain, Latornell R. 3148 Unsubstantiated 298.8 5 AGS ice contact Prospective Prospective Prospective 681.1 4 AGS eolian dunes Prospective 3155 Unsubstantiated 3157 Unsubstantiated 68.2 5 AGS fluvial, floodplain, Simonette R. 3158 Unsubstantiated 173.8 5 AGS fluvial, floodplain, Simonette R. 3159 Unsubstantiated 20.8 4 AGS fluvial (preglacial) 3160 Unsubstantiated 42.1 4 AGS fluvial (preglacial) 3161 Unsubstantiated 3162 Confirmed 0.3 3+ 757.0 3 AGS fluvial (preglacial) 3163 Unsubstantiated 25635.0 5 AGS reworked preglacia 3164 Prospective 5+ 155.8 3 AGS esker 3165 Unsubstantiated 3166 Unsubstantiated 100.4 5 AGS esker 3167 Unsubstantiated 39.9 5 AGS ice contact 3168 Unsubstantiated 37.0 5 AGS esker? 91.3 4 AGS esker 3170 Unsubstantiated 3171 Unsubstantiated 12.1 5 AGS ice contact, Simonette R. valley 20.5 5 AGS ice contact, Simonette R. valley 3172 Unsubstantiated 43.9 5 AGS ice contact, Simonette R. valley 3173 Unsubstantiated 45.7 5 AGS ice contact 3174 Unsubstantiated 3175 Prospective 10+ 740.3 4 AGS esker 506.6 4 AGS ice contact 3176 Unsubstantiated 3177 Unsubstantiated <1 1163.5 4 AGS fluvial, Copton Ck. flats 54.6 5 AGS fluvial, low terrace, Copton Ck. 3178 Unsubstantiated 3179 Unsubstantiated 1425.0 4 AGS fluvial, valley train, low terrace, Kakwa R. 272.4 5 AGS fluvial, valley train, low terrace, Kakwa R. 3180 Unsubstantiated 390.9 4 AGS fluvial lag, valley train, Kakwa R. 3182 Unsubstantiated 119.0 4 AGS fluvial, valley train, low terrace, Kakwa R. 195.9 5 AGS fluvial, valley flats, Sheep Ck. 3183 Unsubstantiated 3184 Unsubstantiated 66.1 5 AGS fluvial, low terrace, Sheep Ck. 3185 Unsubstantiated 320.6 4 AGS fluvial, valley flats, Nose Ck. 3186 Unsubstantiated 1462.6 5 AGS fluvial, valley flats, Nose Ck. 3187 Unsubstantiated 647.2 4 AGS,ATU fluvial, valley flats, Cutbank F 3188 Prospective * mostly depleted 61.7 4 AGS,ATU fluvial, low terrace, Kakwa R. 3189 Prospective 71.9 4 AGS,ATU fluvial, low terrace, Kakwa R. 24.3 5 AGS,ATU fluvial, low terrace, Kakwa R. ~3 1433.3 4 AGS outwash plain, Torrens R. 3191 Unsubstantiated 1468.7 4 AGS outwash/kame, Two Lakes, Gunderson Ck. 3192 Unsubstantiated 3193 Unsubstantiated 29.3 5 AGS ice contact 3194 Unsubstantiated 32.9 5 AGS ice contact 3195 Unsubstantiated 45.1 5 AGS outwash plain, Torrens R. 3196 Unsubstantiated 15.7 5 AGS outwash plain, Torrens R. 3197 Unsubstantiated 6.6 5 AGS fluvial, high terrace, Narraway R. 17.5 5 AGS fluvial, high terrace, Narraway R. 3198 Unsubstantiated 3199 Unsubstantiated 9.5 5 AGS fluvial, high terrace, Narraway R. 3200 Unsubstantiated 39.9 5 AGS fluvial, high terrace, Narraway R. 3201 Unsubstantiated 170.9 5 AGS fluvial, high terrace, Narraway R. Unsubstantiated 131.1 5 AGS | fluvial, high terrace, Narraway F 39.2 5 AGS fluvial, valley flats, Narraway R. 477.2 5 AGS fluvial, valley flats, Narraway R. 3206 Unsubstantiated 3207 Unsubstantiated 1456.4 4 AGS till, reworked fluvial preglacia 10.1 5 AGS fluvial, valley flats, Kakwa R. 3212 Unsubstantiated 3218 Unsubstantiated 3219 Unsubstantiated 3221 Unsubstantiated Unsubstantiated 3230 Unsubstantiated 3231 Unsubstantiated 3233 Unsubstantiated 3236 Unsubstantiated 3242 Unsubstantiated 3243 Unsubstantiated 3245 Unsubstantiated 3248 Unsubstantiated Unsubstantiated 3254 Unsubstantiated 3255 Unsubstantiated 3257 Unsubstantiated Prospective 3266 Unsubstantiated Confirmed Confirmed Prospective Prospective 33.3 5 AGS fluvial, high terrace, Wapiti R. 2.5 93.9 3 AGS outwash Unsubstantiated 17.8 5 AGS outwash 3278 Unsubstantiated 3279 Unsubstantiated 3280 Unsubstantiated 3314.3 4 AGS eolian, dune 3281 Unsubstantiated 399.8 5 AGS eolian, dune 3282 Unsubstantiated 9.9 5 AGS fluvial, intermediate terrace, point bar, Smoky R. 3283 Unsubstantiated 3284 Unsubstantiated 17.6 5 AGS fluvial, channel fill?, intermediate terrace, Smoky R. Unsubstantiated Confirmed 57.3 4 AGS fluvial, high terrace, Smoky R. 3.0 86.9 3 AGS,ATU? fluvial (preglacial)

8b = Holter, M.E., Kathol, C.P. and Waterman, C.1972. Sand and gravel resources of the Grande Prairie region. ARC Open File Report 1972-14. 8j = Edwards, W.A.D. and Scafe, D. 1996. Mapping and resource evaluation of the Tertiary and preglacial sand and gravel formations of Alberta. AE-AGS Open File Report 1994-06. ? = material indicated is probably present

* = material present but insufficient data are available to make an estimate of volume