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Municipal District of Greenview No. 16 Valleyview, Alberta

SE 1-71-1-W6M
Full Depth Testing
Aggregate Testing Report

August 2011

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August 10, 2011

Municipal District of Greenview No. 16
4802-36 Avenue
Valleyview, AB
T0H 3N0

Attention: Dave Hay, Director of Operations Services

RE: SE 1-71-1-W6M Full Depth Testing
Aggregate Testing Report
081-10073-11

On March 9-10, 2011 prospecting was done in the areas designated by the MD of Greenview No. 16 in the SE 1-71-1-W6. This testing was done using a Beck Hammer Drill to ascertain the full depth of the aggregate deposit and to compliment the track hoe testing that was completed in November 2010. During initial track hoe testing SE 1-71-1-W6 was explored by digging 25 test holes. This site was further explored with an additional 5 holes with the Beck Hammer Drill. All test holes were logged using visual observations and field measurements to identify the aggregate encountered.

See the attached Aggregate Testing Plan 10073-A7-01 for the test hole locations.

Using the areas that proved to have gravel, quantities of aggregate have been calculated in the table below.

Aggregate Inventory for SE 1-71-1-W6M

Area	Area (ha)	Average Topsoil Depth (m)	Average Overburden Depth (m)	Average Gravel Depth (m)	Topsoil Quantity (m^3)	Overburden Quantity (m^3)	Gravel Quantity (m^3)
A	4.76	0.10	1.5	3.7	4,760	71,400	176,120
B	3.86	0.12	2.1	5.9	4,632	81,060	227,740
C	5.73	0.06	1.9	4.6	3,438	108,870	263,580
D	0.22	0.14	2.2	3.4	308	4,840	7,480
E	9.99	0.07	2.4	5.3	6,993	239,760	529,470
F	0.59	0.16	2.4	4.6	944	14,160	27,140
G	6.91	0.06	2.1	4.5	4,146	145,110	310,950
Totals	32.06				25,221	665,200	1,542,480
					Estimated Quantity (m^3)		1,542,480

Average Depth Of Excavation=	6.5

Note: Subsoil was included with the Overburden Values but should be stripped separately.

The preceding table indicates the volume estimates for the tested areas of the pit. Investigations were undertaken using a track hoe and a Beck hammer drill. Full depth of the aggregate resource was determined in all of the test holes where the Beck hammer drill was used.

Generally, there is 0.07m to 0.20m of topsoil over 1.2m to 3.5m of overburden. The thickness of the aggregate used to calculate the quantities, of the areas identified on the aggregate testing plan,

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ranged from 2.3m to 5.9m. Groundwater depths that were observed at the time of the Beck testing are illustrated in the table below.

Groundwater Depths observed March 9-10, 2011

Groundwater	
TH #	Depth (m)
A1	5.5
A2	6.7
A3	6.1
A4	5.8
A5	6.1
Average	6.0

The nature of hammer drill testing does not allow for representative or uncontaminated sampling. Samples of the aggregate were not taken at the time of the Beck testing. I have attached the sieve summaries and the aggregate identification sheets for SE 1-71-1-W6M from samples taken at the time of track hoe testing. Please note that for samples taken from the Logan parcel there is over 30% passing the 1250 sieve indicating that a 15% elimination will be required in order to meet typical road crush specifications.

The methods used for the surface material exploration are based on the ASRD "a guide to "Surface Material" Resource Extraction on Public Lands." Classification and identification are based on judgement and even with a comprehensive sampling and testing program may fail to locate some conditions. Actual conditions may vary significantly between points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. The report only presents the conditions at the sampling points at the time of sampling.

The practices and assumptions used to determine the quantity and quality of the material follow standard engineering practices and personal experience.

The evaluation and conclusions contained in this report have been prepared on the basis of conditions at the time of the investigation and on the information provided to us.

Yours Truly,

GENIVAR
Kim Penny, BA | Aggregates Group
GENIVAR | Constructive People
T 780-452-5453 | www.genivar.com

Cc Doug Buyar, Area Manager, GENIVAR
Ken Johnson, P.Ag., Aggregates Supervisor, GENIVAR

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SUMMARY OF SIEVE ANALYSES - GRAVEL PROSPECT

PIT NAME: Logan JOB: 081-10073-00 Nov 23/10

LOCATION: Se 1-71-1-W6M DESIGNATION:

	FIELD INFORMATION									SIEVE ANALYSIS (% Passing)																
LAB SAMPLE NO.	BAG NO.	TEST HOLE NO.	SAMPLED DEPTH (m)	TOP SIZE (mm)	LL	PL	PI	DRY S	AGG CLASSIF.	FIELD MC %	150000	100000	80000	50000	40000	25000	20000	16000	12500	10000	5000	1250	630	315	160	80
1		30	4.0	300									100	69	62	49	42	37	34	30	24	18	15	9	4.7	2.9
2		33	5.0	200									100	92	85	74	68	64	60	56	49	42	35	17	8.6	4.1
3		37	4.5	250									100	75	72	62	56	52	49	47	41	33	24	10	2.5	1.2
4		38	5.5	150									100	81	74	59	52	48	42	40	37	33	29	21	14.3	9.1
5		42	4.0	150									100	90	81	67	61	56	52	49	43	31	22	13	4.5	1.6
6		51	5.0	150									100	77	70	59	54	49	43	40	34	27	21	13	9.4	6.8
SIEVE AVG.													**100**	**81**	**74**	**62**	**56**	**51**	**47**	**44**	**38**	**31**	**24**	**14**	**7.3**	**4.3**

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AGGREGATE IDENTIFICATION

PIT NAME: Logan
LOCATION: SE 1-71-1-W6

PROJECT _____ JOB 081-10073-00 DATE November 23/10
FROM _____ TO _____ SAMPLED Rec'd

AGGREGATE SUITABILITY
_ 1ST COURSE _ GBC _ CSBC __ OTHER
_ ACP _ ASBC __ BLEND SAND __ DES____ CLASS____

ADDITION TO AGGREGATE AT:
NAME: _____
LOCATION: _____

SAMPLED BY: K Penny & S Penny
REPORT TO: _____
POST OFFICE: _____
DISTRICT: _____

	FIELD INFORMATION									LABORATORY VISUAL EVALUATION																					
LAB SAMPLE NO.	Test Hole	TEST HOLE NO.	SAMPLED DEPTH (m)	TOP SIZE (mm)	% BETWEEN 80-150 mm	% BETWEEN 150-300 mm	% OVER 300 mm	MOIST. CONT.	REMARKS	WELL GRADED	EXCESSIVE PEA GRAVEL	EXCESSIVE COARSE SAND	EXCESSIVE FINE SAND	SHORT OF COARSE SAND	SHORT OF FINE SAND	PLASTICITY ASTM D2488	ANGULAR	SUB-ANGULAR	SUB-ROUND	ROUGH	SMOOTH	ENCRUSTED	SOFT SHALE	IRON NODULES	SOFT SANDSTONE	CLAY/SILT LUMPS	CLAY COATING ON ROCK	COAL
1		30	4.0	300	10	5	0															H						T	T
2		33	5.0	200	7	3	0															H							T
3		37	4.5	250	10	3	0															H							
4		38	5.5	150	7	0	0															H					T		
5		42	4.0	150	5	0	0															H							T
6		51	5.0	150	10	0	0															H							

LEGEND

H - HIGH	T - TRACE
M - MEDIUM	N/P - NON PLASTIC
L - LOW	

REMARKS _____

SE 1-71-1-6 Test Logs

TH 30
TS 0.05
SiS 1.95
SG 2.50
SG

TH 31
TS 0.05
SiS 1.95
SG 2.50
SG

TH 32
TS 0.05
SiS 2.75
SG 2.20
SG
Water @ 4.5m

TH 33
TS 0.05
SiS 2.85
SG 2.90
SG
Water @ 5.60m

TH 34
TS 0.05
SiS 3.55
SG 2.00
SG
Water @ 5.60m

TH 35
TS 0.05
SiS 1.75
SG 3.30
C 0.40
SG
Water @ 4.50m

TH 36
TS 0.050
SiSC 3.150
SG 1.300
SiSC
Water @ 3.4m

TH 37
TS 0.05
SiS 3.85
G 1.10
G
Water @ 3.90m

TH 38
TS 0.05
SiS 3.15
SG 2.50
G

TH 39
TS 0.05
SiS 2.95
SiC 0.70
G 0.70
G
Water @ 3.8m

TH 40
TS 0.05
SiS 4.65
SG 1.30
SG

TH 41
TS 0.1
SiS 1.3
C 0.4
SG 0.9
SG
Water @ 2.70m

TH 42
TS 0.20
S 3.15
SG 1.30
SG

TH 43
TS 0.05
S 2.95
SG 0.90
SG
Water @ 3.9m

TH 44
TS 0.05
S 3.35
SG 2.70
SG

TH 45
TS 0.10
S 2.20
SG 2.20
SG
Water @ 3.40m

TH 46
TS 0.10
S 0.90
SG 3.50
SG
Water @ 3.20m

TH 47
TS 0.10
S 0.90
SG 2.50
SG

TH 48
TS 0.10
S 0.40
SG 4.80
SG
Water @ 5.30m

TH 49
TS 0.05
S 2.95
SG 1.60
SG

TH 50
TS 0.05
S 2.65
SG 2.80
SG

TH 51
TS 0.05
SiS 2.85
SG 2.60
SC

TH 52
TS 0.05
SiS 3.65
SG 3.10
S
Water @ 5.80m

TH 53
TS 0.05
SiS 3.35
SG 1.40
SG

TH 54
TS 0.05
SiS 1.85
SG 0.30
S 0.70
SG 2.90
SiSC
Water @ 5.8m

Beck Testing March 2011

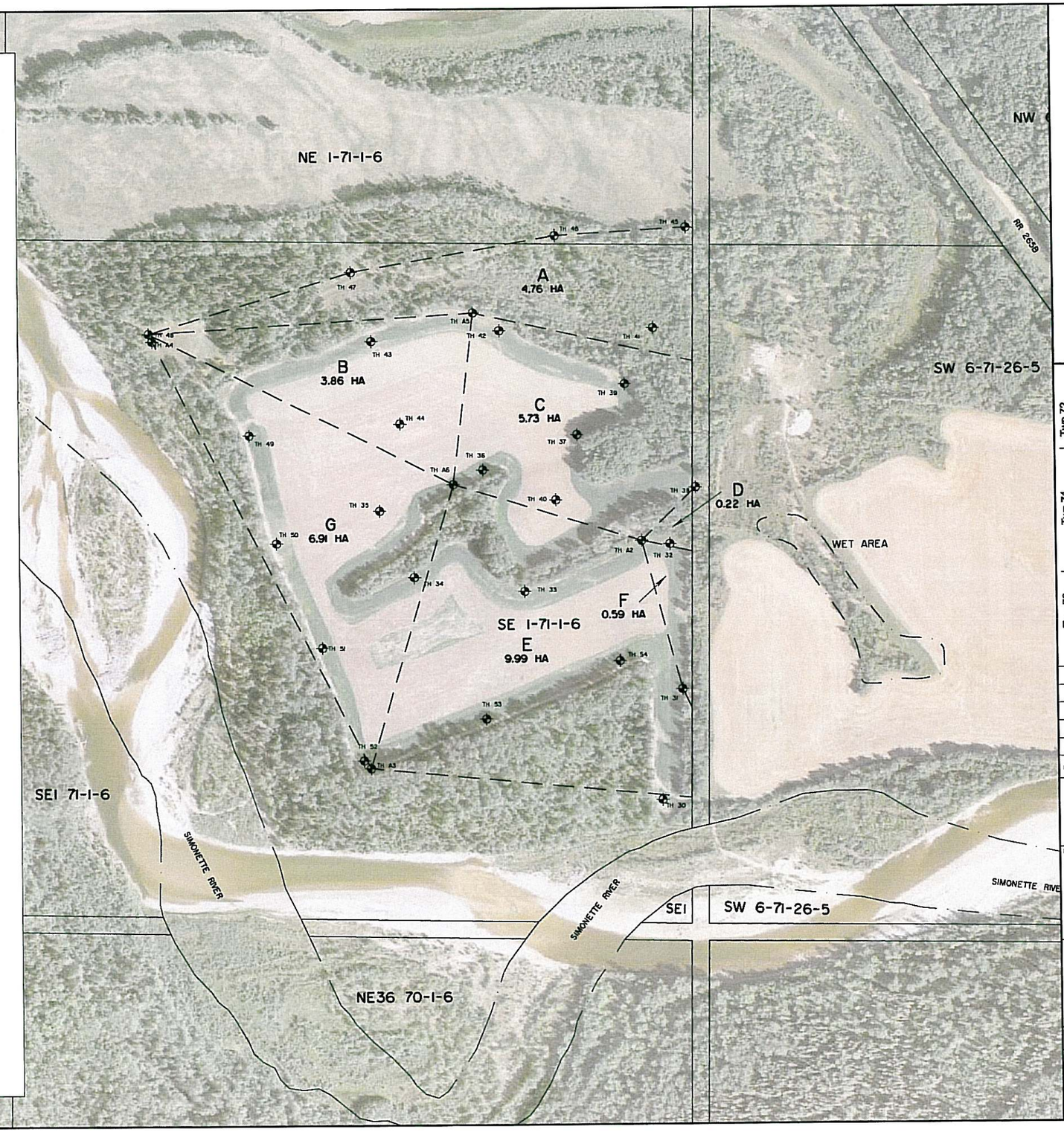
TH A2
S 2.4
SG 5.5
BEDROCK
Water @6.7m

TH A3
S 2.4
SG 5.2
SSTONE
Water @ 6.1

TH A4
GS 0.9
SG 6.1
SSTONE
Water @ 5.8

TH A5
S 3.0
SG 6.1
C SSTONE
Water @ 6.1m

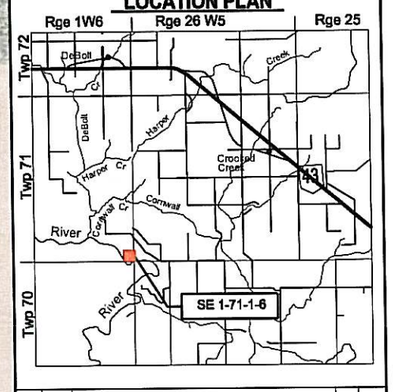
TH A6
S 3.0
SG 5.5
C
Water @ 6.1m



LEGEND

TH	TESTHOLE
TS	TOP SOIL
SS	SUBSOIL
C	CLAY
S -	SAND
Si	SILT
SiC	SILTY CLAY
SC -	SANDY CLAY
CS	CLAYEY SAND
GC	GRAVELY CLAY
CG	CLAYEY GRAVEL
SG	SANDY GRAVEL
GS	GRAVELY SAND

LOCATION PLAN



No.	DATE	REVISION	BY	APP

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PROJECT
M.D. OF GREENVIEW
GRAVEL EXPLORATION

DRAWING
SE 1-71-1-W6
AGGREGATE TESTING PLAN

DRAWN NA	SCALE 1:5000	DATE 2011-04-04	
SHEET 3 of 4	PROJECT No. 081-10073-11		
CHECKED	DRAWING No. 10073-A7-01	REVISION 0	
APPROVED			