Winnipeg

Water and Waste Department • Service des eaux et des déchets

ENVIRONMENT ACT LICENCE #1089E RR

SOLIDS DEWATERING, TEMPORARY BIOSOLIDS STORAGE and APPLICATION TO AGRICULTURAL LAND

2008

Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2009

Our Files: 040-17-08-23-01

Mr. Cliff Lee, P. Eng.
Assistant Director, Red River Region
Manitoba Conservation
Suite 160 – 123 Main Street
Winnipeg, Manitoba
R3C 1A5

Dear Mr. Lee:

RE: ANNUAL COMPLIANCE REPORT FOR ENVIRONMENT ACT LICENCE 1089E RR

Enclosed you will find our annual compliance report which details the City of Winnipeg's Biosolids Dewatering and Disposal Program for 2008. Included in this report are:

a) details of the 2008 biosolids distribution and monitoring programs
b) details of the proposed 2009 biosolids distribution programs.

As required under Clause 22 of the Licence, copies of this report are being sent to the Rural Municipalities of West St. Paul, Macdonald and Rosser.

If you have any questions concerning the annual report, I may be reached by telephone at 986-4807 or by e-mail at kkjartanson@winnipeg.ca.

Yours sincerely,

Original signed by:

K.J.T. Kjartanson, P.Eng.
Manager of Environmental Standards

KJTK:rg
Enclosure

c: B.D. MacBride, P.Eng.
W.J. Borlase, P.Eng.
P.E.A. Lagassé, P.Eng.
D. DeCraene

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Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2009

Our Files: 040-17-08-23-01

Reeve and Council
Rural Municipality of Macdonald
161 Mandan Drive
P.O. Box 100
Sanford, Manitoba
R0G 2J0

Dear Reeve and Council:

RE: ANNUAL COMPLIANCE REPORT FOR ENVIRONMENT ACT LICENCE 1089E RR

Enclosed you will find our annual compliance report which details the City of Winnipeg's Biosolids Dewatering and Disposal Program for 2008. Included in this report are:

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b) details of the proposed 2009 biosolids distribution programs.

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Environmental Standards Division • Division des normes environnementales
2230 Main Street • 2230, Rue Main • Winnipeg • Manitoba R2V 4T8
tel/tél. (204) 986-4684 • fax/télec. (204) 339-2147 • www.winnipeg.ca

Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2009

Our Files: 040-17-08-23-01

Reeve and Council
Rural Municipality of West St. Paul
Box 27, Grp 31, RR1B
3350 Main Street
Winnipeg, Manitoba
R3C 4A3

Dear Reeve and Council:

RE: ANNUAL COMPLIANCE REPORT FOR ENVIRONMENT ACT LICENCE 1089E RR

Enclosed you will find our annual compliance report which details the City of Winnipeg's Biosolids Dewatering and Disposal Program for 2008. Included in this report are:

a) details of the 2008 biosolids distribution and monitoring programs
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Winnipeg

Water and Waste Department • Service des eaux et des déchets

January 29, 2009

Our Files: 040-17-08-23-01

Reeve and Council
Rural Municipality of Rosser
Box 131
Rosser, Manitoba
R0H 1E0

Dear Reeve and Council:

RE: ANNUAL COMPLIANCE REPORT FOR ENVIRONMENT ACT LICENCE 1089E RR

Enclosed you will find our annual compliance report which details the City of Winnipeg's Biosolids Dewatering and Disposal Program for 2008. Included in this report are:

a) details of the 2008 biosolids distribution and monitoring programs
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Water and Waste Department • Service des eaux et des déchets

ENVIRONMENT ACT LICENCE #1089E RR

SOLIDS DEWATERING, TEMPORARY BIOSOLIDS STORAGE and APPLICATION TO AGRICULTURAL LAND

2008

Jenni Jones, B. Sc.
Laboratory Technician

Renée Grosselle, B. Sc.
Supervisor of Compliance Reporting Branch

Kelly Kjartanson, M. Sc., P. Eng.
Manager of Environmental Standards Division

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EXECUTIVE SUMMARY

Amended Environment Act Licence #1089E RR, issued on June 14, 2000, requires that the City of Winnipeg monitor its biosolids dewatering and disposal operations and submit an annual report to the regulating authority and various municipalities on or before the 31ST of January of each year.

This report summarizes the results of the City's 2008 Biosolids Application Program (WINGRO) and also outlines the proposed program for the 2009 calendar year.

In 2008, the City produced 11,404 dry-tonnes of anaerobically digested, mechanically dewatered biosolids at its North End Water Pollution Control Centre (NEWPCC). The total solids concentration in the dewatered biosolids averaged 25.7%. The WINGRO program applied 66.8% of the annual biosolids production to farmland and deposited 33.2% at the Brady Road Landfill. The interim storage pad was not used in 2008.

The WINGRO biosolids application rate for the three fields completed in 2008 was 55.1 dry-tonnes per hectare on the 186.0 hectares to which biosolids were applied. For the 2009 application year, the City proposes to complete biosolids application to fields previously started and to utilize several new parcels of land. Approvals have been granted by the applicable Rural Municipalities. The proposed lands will be sampled to ensure licence criteria are met and the application rate will not exceed 56 dry-tonnes per hectare.

COMPLIANCE REPORT

Environment Act Licence #1089E was issued to the City of Winnipeg on February 21, 1989 and amended on April 28, 2000 (#1089E R) and on June 14, 2000 (#1089E RR). Licence #1089E RR sets limits, terms and conditions with which the City of Winnipeg must comply in the operation of its mechanical dewatering equipment, the temporary storage of biosolids, and with its disposal onto agricultural land. One of these conditions is that **"The applicant shall, on or before the 31st day of January of each year, submit to the Director, with a copy to the Rural Municipality of West St. Paul and to each Municipality in which biosolids have been disposed of, a report...".** In keeping with this requirement, the City of Winnipeg hereby submits this compliance report which contains information on its 2008 Biosolids Land Application Program.

Licence #1089E RR contains several clauses. This report presents results and/or comments for each of the clauses under which the City has generated pertinent information during the course of conducting its 2008 Biosolids Land Application Program. The report also provides information on its proposed Biosolids Program for the twelve months starting January 1, 2009.

The specific requirements of each clause are presented in **bold-faced type** followed by the City's comments.

2008 BIOSOLIDS APPLICATION PROGRAMS

(a) Dewatering

"The Licencee shall operate and maintain the mechanical dewatering equipment to achieve a level of at least 20 percent solids, by weight after the dewatering process." (Clause 5)

From January 1, 2008 to December 31, 2008 the City produced 11,404 dry-tonnes of mechanically-dewatered biosolids at its NEWPCC facility. Appendix I contains the mechanical dewatering operating records for 2008. The data show that the dewatering equipment achieved a total solids content in the biosolids exceeding 20 percent by weight.

For the period cited, total solids in the biosolids averaged 25.7 ± 2.7% (*n* = 236).

(b) Storage

"The Licencee shall only store biosolids at the temporary storage facility in circumstances when agricultural land is not accessible for direct biosolids disposal (Clause 6)" and "the Licencee shall ensure that the biosolids are removed from the temporary storage facility for application to agricultural land as soon as the agricultural land is available (Clause 7)."

In 2008, the storage pad was not used to provide interim storage for any mechanically-dewatered biosolids. When agricultural land was not accessible the biosolids were disposed at the Brady Landfill site. The WINGRO program deposited 33.2% of the annual biosolids production at the Brady Landfill.

(c) Monitoring Results

"The Licencee shall conduct a monitoring program in accordance with Appendix "B" to this licence" (Clause 21) and present "the results of analysis of biosolids, soil, and surface water runoff, where the biosolids are applied as well as odour complaint investigations concerning biosolids storage and application" (Clause 22 (c)).

The following pages and Appendix I contain the results of analyses conducted on samples of biosolids, ditchwater and soils collected in fulfilment of the monitoring requirements stipulated in Licence #1089E RR.

These results include the following:

- Biosolids Quality	Table 1
- Ditchwater	Table 2, Figure 1
- Background Soils Results for Applied Fields	Table 3
- % Solids in Mechanically Dewatered Biosolids	Appendix I

No formal odour complaints associated with the WINGRO Program were received in 2008.

TABLE 1

2008 Biosolids Quality

Sample Number	Date Sampled *	Total Cd (mg/Kg-Cd)	Total Cr (mg/Kg-Cr)	Total Cu (mg/Kg-Cu)	Total Ni (mg/Kg-Ni)	Total Pb (mg/Kg-Pb)	Total Zn (mg/Kg-Zn)	Total P (mg/Kg-P)	NH3-N (mg/Kg-N)	TKN (mg/Kg-N)	pH (units)	Specific Conductance (dS/m)	Total Solids (%)
1	23-Dec-07	3.2	210	1130	57.3	70.4	1030	18,200	13,700	40,500	8.60	10.6	23.37
2	06-Jan-08	2.5	147	1080	67.3	64.3	943	19,300	12,600	51,800	8.75	10.7	24.12
3	20-Jan-08	7.1	159	1050	76.9	64.1	910	19,200	12,400	40,400	8.72	9.91	23.98
4	03-Feb-08	5.9	139	1140	63.8	65.8	931	19,400	11,200	44,000	8.57	11.0	24.61
5	17-Feb-08	4.4	128	1140	56.3	66.6	891	20,600	12,900	48,600	8.90	10.3	23.95
6	02-Mar-08	3.1	113	1110	54.0	70.8	925	19,900	11,900	42,800	8.84	8.83	25.61
7	16-Mar-08	2.2	94.6	733	33.4	61.6	852	16,600	9,410	30,100	8.57	10.1	30.85
8	30-Mar-08	2.2	76.0	525	33.7	59.0	1420	16,300	9,040	30,700	8.12	8.96	31.85
9	13-Apr-08	4.5	102	764	48.0	86.9	1640	17,600	10,200	32,000	8.23	8.04	33.35
10	27-Apr-08	3.9	97.2	758	45.7	78.6	1240	16,900	9,610	30,800	8.09	7.37	29.55
11	11-May-08	2.8	87.3	717	61.9	66.3	1040	18,700	11,200	35,500	8.20	8.29	26.70
12	25-May-08	3.9	104	710	55.0	66.4	1170	18,900	10,600	39,700	7.79	9.77	25.79
13	08-Jun-08	3.0	149	676	52.0	115	834	16,800	9,500	26,700	8.54	9.39	27.21
14	22-Jun-08	1.9	148	679	45.2	94.5	754	15,500	9,840	29,800	8.30	9.14	28.40
15	07-Jul-08	3.2	133	819	58.4	96.1	801	16,100	8,960	30,700	8.46	9.67	27.01
16	20-Jul-08	3.2	118	895	47.9	85.4	784	17,600	8,870	33,800	8.26	8.57	25.41
17	03-Aug-08	3.4	120	1010	50.3	85.6	849	18,300	13,900	39,000	8.30	11.2	22.63
18	18-Aug-08	3.0	118	987	52.5	90.7	911	17,400	12,000	37,500	8.16	10.0	25.86
19	31-Aug-08	2.6	108	938	54.3	95.5	919	16,700	11,700	30,300	8.15	9.18	26.17
20	15-Sep-08	2.6	106	1020	56.1	81.0	894	16,900	10,900	38,000	8.13	10.3	25.11
21	28-Sep-08	4.0	110	1050	53.2	92.2	904	18,600	10,800	47,300	8.11	9.13	24.20
22	12-Oct-08	3.8	103	1090	59.7	103	904	17,500	11,900	29,900	7.90	9.73	23.34
23	26-Oct-08	3.3	96.6	1060	55.9	83.4	882	17,800	11,700	31,100	8.03	10.1	25.00
24	09-Nov-08	2.7	76.9	841	59.8	70.8	703	16,500	11,700	25,800	8.05	11.1	23.56
25	23-Nov-08	3.7	410	1200	76.2	89.0	1000	17,800	11,500	28,700	8.05	9.68	23.13
26	07-Dec-08	2.6	368	901	70.1	71.0	2040	17,700	10,500	30,800	7.94	7.48	24.83
27	22-Dec-08	2.7	407	918	97.6	69.5	1900	22,800	11,700	44,800	8.02	8.08	25.40
Average:		3.4	149	924	57.1	79	1,040	17,985	11,120	35,967	8.29	9.50	26.0
Maximum:		7.1	410	1,200	97.6	115	2,040	22,800	13,900	51,800	8.90	11.20	33.4
Minimum:		1.9	76	525	33.4	59	703	15,500	8,870	25,800	7.79	7.37	22.6

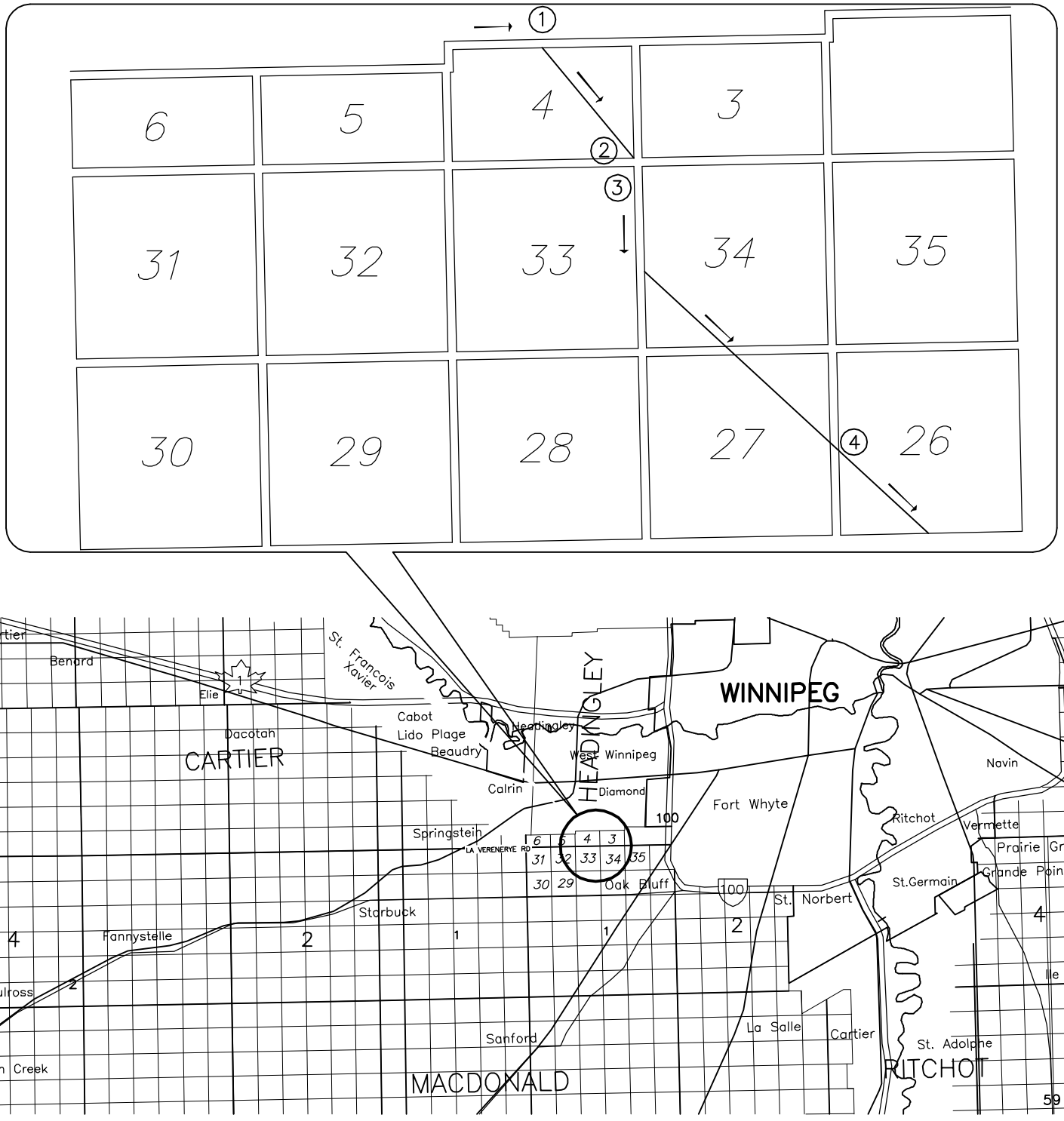
*** Indicates starting date for year 2008 biweekly composite samples**

TABLE 2

2008 Ditchwater Sampling Results

Field # 55 – Oak Bluff

Sample Location	Sample Number	Date	NH_3^+ mg/L N	$NO_3 – NO_2$ mg/L N	TKN mg/L N	Total Phosphorus mg/L P	Conductivity umhos/cm	Total Coliform MPNU/100 mL	Fecal Coliform MPNU/100 mL
1 – Far Upstream	L618831-1	April 14 / 08	0.014	0.008	0.6	0.317	255	9300	93
2 – Upstream	L618831-2	April 14 / 08	0.017	0.231	1.3	0.896	246	150	<3
3 – Off Field	L618831-3	April 14 / 08	6.25	0.175	10.3	0.81	243	24000	<3
4 – Far Downstream	L618831-4	April 14 / 08	1.55	1.02	4.2	1.14	297	9300	4



LEGEND:

- → FLOW DIRECTION
- (1) FAR UPSTREAM
- (2) UPSTREAM
- (3) OFF FIELD
- (4) DOWNSTREAM

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF MACDONALD

DITCHWATER SAMPLING LOCATIONS

Figure 1.

TABLE 3

2008 BIOSOLIDS LAND APPLICATION PROGRAM

BACKGROUND SOILS RESULTS FOR APPLIED FIELDS

	Nutrients		Metals									
Field Number	NO3-N* (kg/ha)	SOD** PHOS (mg/kg)	CADMIUM (mg/kg)	COPPER (mg/kg)	LEAD (mg/kg)	ZINC (mg/kg)	NICKEL (mg/kg)	CHROMIUM (mg/kg)	pH	% SOLIDS	CONDUCTIVITY (ds/m)	CATION EXCHANGE CAPACITY (meqNH4/100g)
#54	40.0	2.3	0.32	28.0	13.4	90.0	35.5	49.5	7.3	80.1	5.5	43.2
#55	16.0	23.0	0.32	35.0	14.9	111	45.9	59.1	7.4	79.6	0.5	51.3
#56	62.9	14.0	0.34	28.0	13.4	82.0	39.3	47.9	7.8	73.8	2.5	51.0
#57	18.0	33.0	0.03	29.0	13.2	90.0	42.3	54.9	7.7	69.6	2.2	44.0
#58	14.0	24.0	0.37	27.0	1.0	84.0	37.2	50.0	7.7	67.7	1.7	47.0

Regulated Parameter:

Licence requirements:

NO3-N = <67 kg/ha

SOD PHOS = <60 mg/kg

pH = >6.0 units

NOTES: (1) Soil sample depth is 0 to 15 cm for all parameters except NO_3N where sample depth is 0 to 60 cm.

(2) Fields #54, #55, and #56 were completed in 2008.

(3) Fields #57 and #58 are ongoing.

* Based on Soil Density = 1200 Dry kg/m3

** Sodium Bicarbonate Extractable Phosphorus

(d) Distribution Program

"details of the biosolids distribution program carried out during the previous calendar year, including the description of the location of the land on which the biosolids were applied and the dry weight of biosolids distributed per hectare." (Clause 22 (a))

Of the 11,404 dry-tonnes of mechanically-dewatered biosolids produced at the NEWPCC from January 1, 2008 to December 31, 2008, 66.8% were re-cycled onto farmland through the WINGRO program, while 33.2% were disposed at the Brady Road Landfill. The City of Winnipeg's 2008 Biosolids Land Application Program (WINGRO) spread and incorporated digested, dewatered biosolids onto 4 parcels of land. A total of 10,243 dry-tonnes of dewatered biosolids were distributed on the three fields completed in 2008 at an average application rate of 55.1 dry-tonnes per hectare on the 186.0 hectares of land utilized.

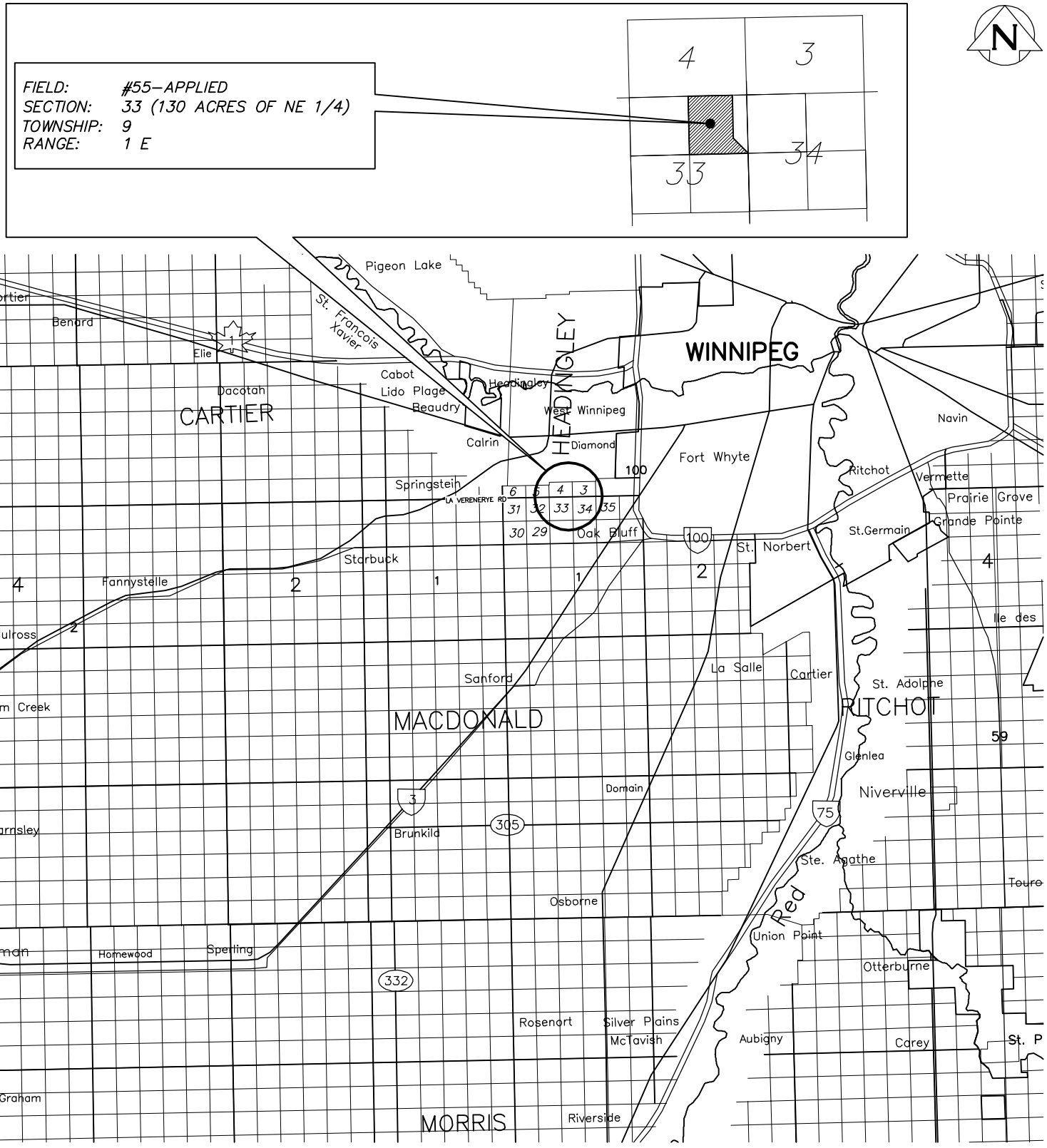
Biosolids application to two parcels was incomplete on December 31, 2008 and will be reported in the year that the application is completed. Parcel #58 was proposed and approved for application in 2008 however we did not start application until January 2009. We have identified this parcel as an on-going field because it had already been approved for 2008. Table 4 provides a detailed summary of the results, Figures 2 and 3 show the locations where biosolids applications were completed in 2008, and Figure 4 shows the locations of the fields where biosolids application is ongoing.

TABLE 4
2008 BIOSOLIDS PROGRAM
Land Application Summary

Field Number	Rural Municipality	Location Sec-Twnshp-Rge	Year Applied	Applied Area (ha)	Dry Solids Applied (tonnes)	Solids Loading Rate for Completed Field (dry tonnes/ha)
54	Rosser	34-12-2W South East	2007/08	86.5	4,748	54.9
55	Macdonald	33-9-1E North East	2007/08	51.7	2,865	55.4
56	Rosser	35-12-2W South West	2008	47.8	2,630	55.0
57*	Rosser	35-12-2W North East	(2008)	(23.0)	(1,285)	(55.9)
58*	Rosser	35-12-2W North East	(2009)	(0.0)	(0)	(0.0)
Totals For Completed Fields				186.0	10,243	
Weighted Average For Completed Fields						55.1

* When completed, this field will be included in future reports.

( ) Not Included in Totals



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

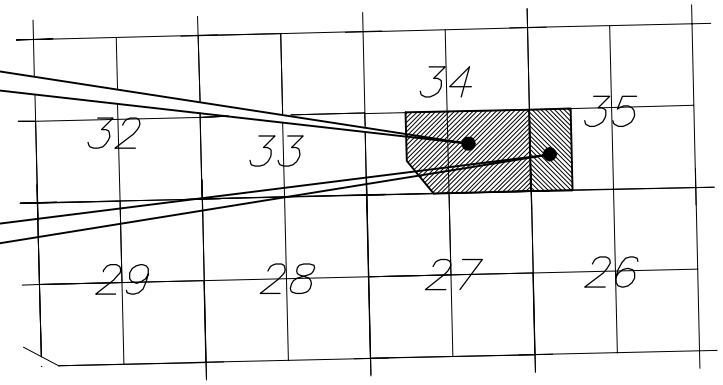
MUNICIPALITY OF MACDONALD

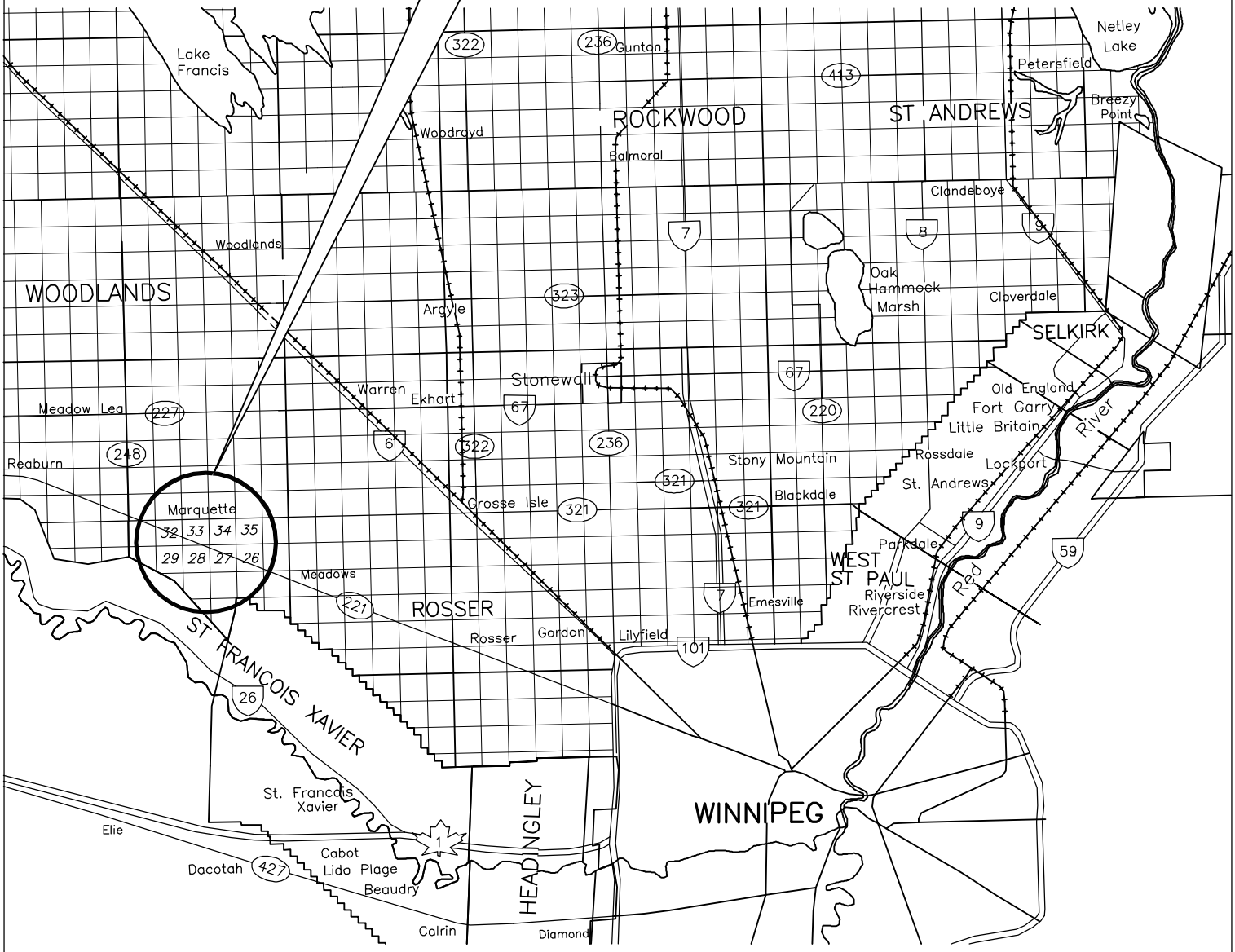
APPLIED FIELD

Figure 2.

FIELD: #54–APPLIED
SECTION: 34 (E 175 ACRES OF S 1/2)
TOWNSHIP: 12
RANGE: 2W

FIELD: #56–APPLIED
SECTION: 35 (W 100 ACRES OF S 1/2)
TOWNSHIP: 12
RANGE: 2W





Winnipeg

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

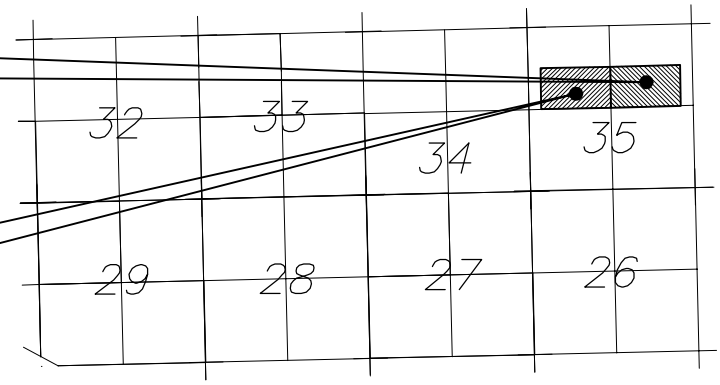
MUNICIPALITY OF ROSSER

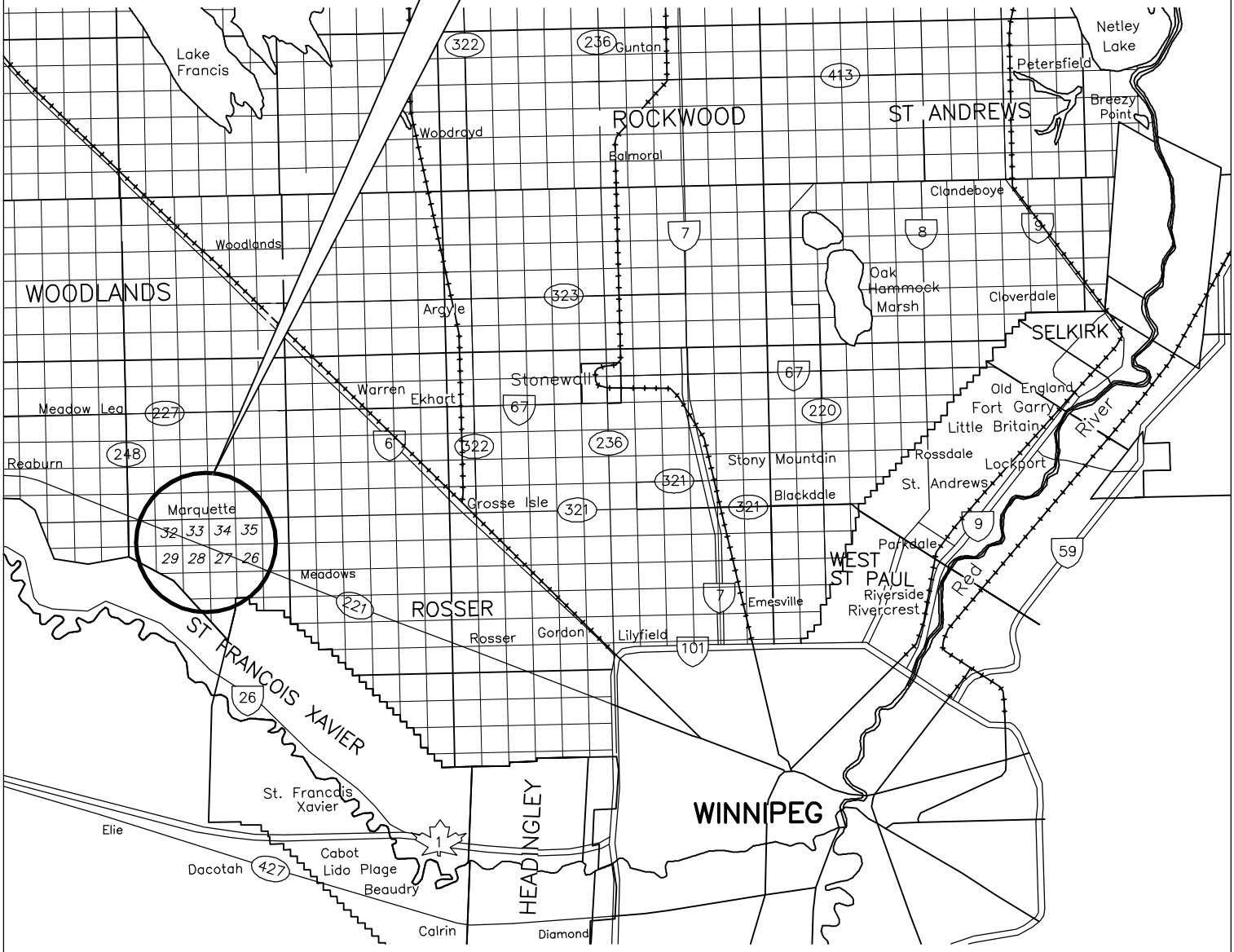
APPLIED FIELDS

Figure 3.

FIELD: #57-ONGOING
SECTION: 35 (60 ACRES OF NE 1/4)
TOWNSHIP: 12
RANGE: 2W

FIELD: #58-ONGOING
SECTION: 35 (60 ACRES OF NW 1/4)
TOWNSHIP: 12
RANGE: 2W





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CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROSSER

ONGOING FIELDS

Figure 4.

2009 PROPOSED BIOSOLIDS APPLICATION PROGRAMS

"details of the biosolids application program proposed to be carried out during the one-year period following the issuance of the report, including a description of the locations of the land on which application will be carried out, the proposed dates of application, and the proposed dry weight of biosolids per hectare of agricultural land". (Clause 22 (b))

In the 2009 WINGRO application year, which runs from January 1, 2009 to December 31, 2009, the City proposes to apply biosolids to three new parcels of land located in the R.M. of Rosser. Table 5 provides a description of these land parcels, and Figure 5 shows their locations. The new fields will be sampled in 2009 to ensure background soils meet licence criteria. Biosolids from the mechanical dewatering facility will be applied and incorporated into the on-going and proposed land parcels at a rate that will not exceed 56 dry- tonnes per hectare. The City also proposes to dispose biosolids at the Brady Road Landfill site on a limited, as required, basis.

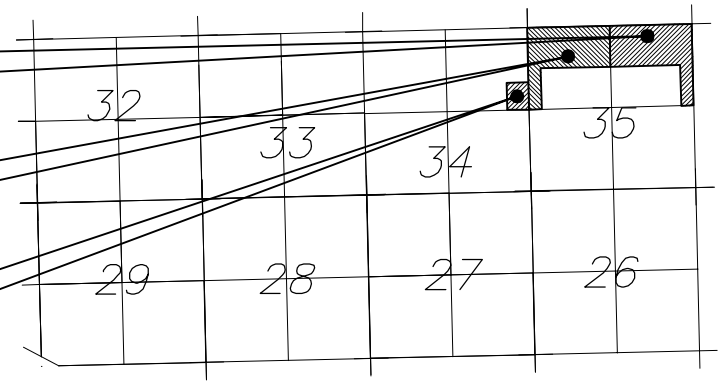
TABLE 5
New Biosolids Application Areas Proposed For 2009

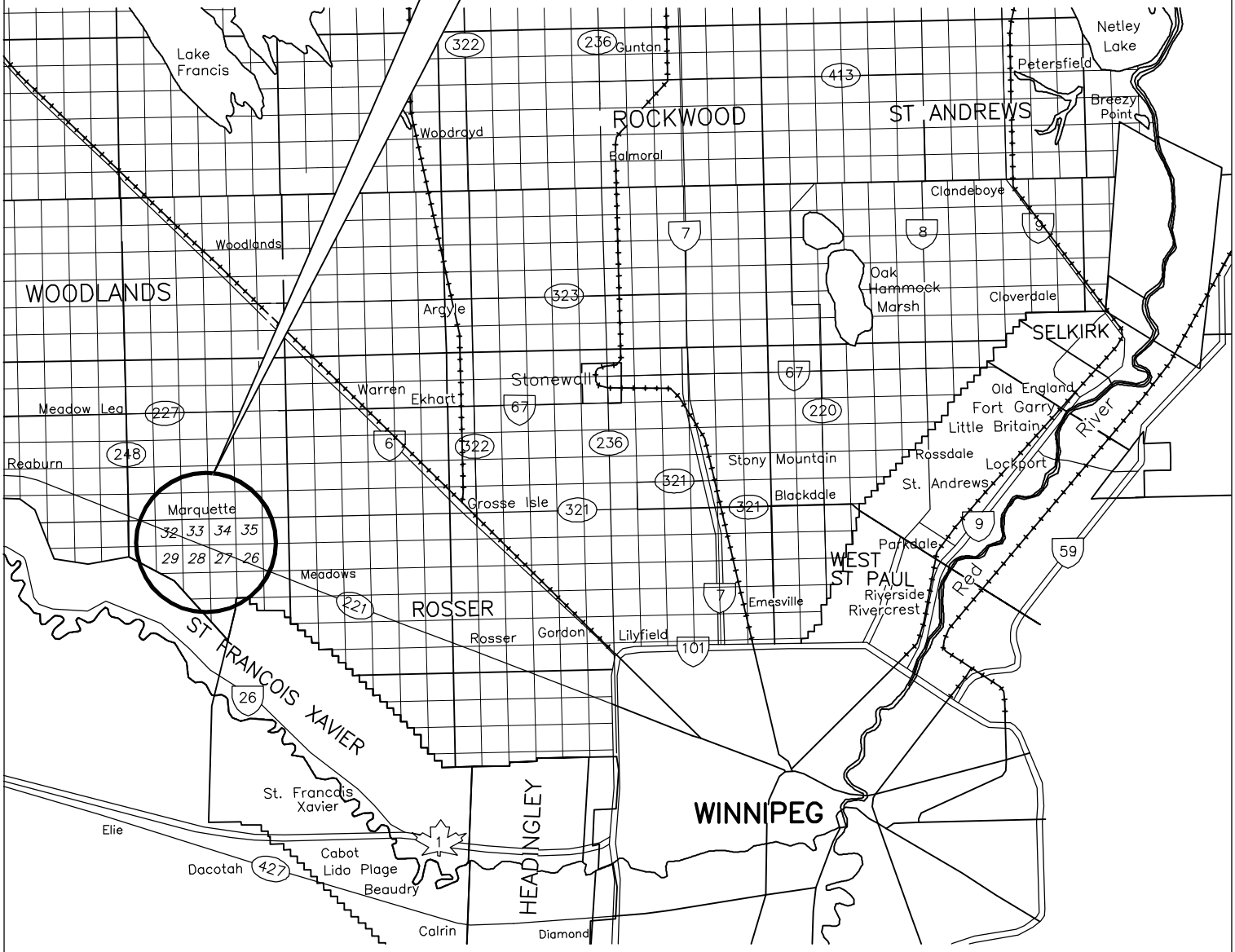
Land Parcel Identification Number	Rural Municipalities	Description (Section-Township-Range)	Approximate Area (hectares)
59 P	Rosser	35-12-2W 120 Acres of NE 1/4	49
60 P	Rosser	35-12-2W 120 Acres of NW 1/4	49
61 P	Rosser	34-12-2W 48 Acres of NE 1/4	19

FIELD: #59–PROPOSED
SECTION: 35 (120 ACRES OF NE 1/4)
TOWNSHIP: 12
RANGE: 2W

FIELD: #60–PROPOSED
SECTION: 35 (120 ACRES OF NW 1/4)
TOWNSHIP: 12
RANGE: 2W

FIELD: #61–PROPOSED
SECTION: 34 (48 ACRES OF NE 1/4)
TOWNSHIP: 12
RANGE: 2W





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WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROSSER

PROPOSED FIELDS

Figure 5.

Footnote:
Personal information included in this Biosolids report has been excluded from publication pursuant to the Manitoba Freedom of Information and Protection of Privacy Act (FIPPA).

APPENDIX I

OPERATING RECORDS

for

MECHANICAL DEWATERING OF BIOSOLIDS

Monthly Hauling Report
For the Month 01/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#55 33-9-1E NE	204.08	23.1	47.14
03	NEWPCC	#55 33-9-1E NE	151.56	23.1	35.01
04	NEWPCC	#55 33-9-1E NE	112.82	21.2	23.92
07	NEWPCC	#55 33-9-1E NE	258.08	23.8	61.42
08	NEWPCC	#55 33-9-1E NE	150.84	23.6	35.60
09	NEWPCC	#55 33-9-1E NE	104.18	23.5	24.48
10	NEWPCC	#55 33-9-1E NE	128.76	23.6	30.39
11	NEWPCC	#55 33-9-1E NE	125.74	21.2	26.66
14	NEWPCC	#55 33-9-1E NE	176.82	22.7	40.14
15	NEWPCC	#55 33-9-1E NE	201.34	23.5	47.31
16	NEWPCC	#55 33-9-1E NE	152.56	23.9	36.46
17	NEWPCC	#55 33-9-1E NE	103.06	23.1	23.81
18	NEWPCC	#55 33-9-1E NE	149.58	23.6	35.30
21	NEWPCC	#55 33-9-1E NE	204.48	23.5	48.05
22	NEWPCC	#55 33-9-1E NE	203.96	23.4	47.73
23	NEWPCC	#55 33-9-1E NE	128.82	23.3	30.02
24	NEWPCC	#55 33-9-1E NE	151.48	23.7	35.90
25	NEWPCC	#55 33-9-1E NE	102.56	22.9	23.49
28	NEWPCC	#55 33-9-1E NE	300.22	23.9	71.75
29	NEWPCC	#55 33-9-1E NE	94.62	23.7	22.43
31	NEWPCC	#55 33-9-1E NE	219.90	23.5	51.68

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#55 33-9-1E NE	3425.46	798.68	48.5	166134.810		798.68	
							798.68	

Monthly Hauling Report
For the Month 02/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#55 33-9-1E NE	100.54	23.5	23.63
04	NEWPCC	#55 33-9-1E NE	202.82	24.6	49.89
05	NEWPCC	#55 33-9-1E NE	203.96	24.7	50.38
06	NEWPCC	#55 33-9-1E NE	128.66	24.8	31.91
07	NEWPCC	#55 33-9-1E NE	99.94	24.4	24.39
08	NEWPCC	#55 33-9-1E NE	100.86	24.2	24.41
11	NEWPCC	#55 33-9-1E NE	223.02	24.1	53.75
12	NEWPCC	#55 33-9-1E NE	151.24	23.5	35.54
13	NEWPCC	#55 33-9-1E NE	123.08	24.0	29.54
14	NEWPCC	#55 33-9-1E NE	99.68	23.7	23.62
15	NEWPCC	#55 33-9-1E NE	129.32	24.0	31.04
19	NEWPCC	#55 33-9-1E NE	203.62	23.4	47.65
20	NEWPCC	#55 33-9-1E NE	226.88	23.2	52.64
21	NEWPCC	#55 33-9-1E NE	323.80	23.0	74.47
22	NEWPCC	#55 33-9-1E NE	114.86	23.0	26.42
25	NEWPCC	#55 33-9-1E NE	51.00	20.0	10.20
27	NEWPCC	#55 33-9-1E NE	230.36	23.7	54.60
28	NEWPCC	#55 33-9-1E NE	295.26	23.8	70.27
29	NEWPCC	#55 33-9-1E NE	177.48	23.8	42.24

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#55 33-9-1E NE	3186.38	756.57	48.5	154539.430		756.57	
							756.57	

Monthly Hauling Report
For the Month 03/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
03	NEWPCC	#55 33-9-1E NE	292.02	24.6	71.84
04	NEWPCC	#55 33-9-1E NE	148.58	25.8	38.33
05	NEWPCC	#55 33-9-1E NE	151.06	26.0	39.28
06	NEWPCC	#55 33-9-1E NE	152.98	25.1	38.40
07	NEWPCC	#55 33-9-1E NE	98.52	26.0	25.61
10	NEWPCC	#55 33-9-1E NE	222.90	24.7	55.06
11	NEWPCC	#2 0-0-	291.94	24.4	71.24
12	NEWPCC	#2 0-0-	129.48	25.2	32.63
13	NEWPCC	#2 0-0-	127.64	26.8	34.21
14	NEWPCC	#2 0-0-	203.56	26.7	54.35
17	NEWPCC	#2 0-0-	294.42	27.9	82.14
18	NEWPCC	#2 0-0-	126.70	28.1	35.60
19	NEWPCC	#2 0-0-	179.54	28.6	51.35
20	NEWPCC	#2 0-0-	205.06	29.2	59.88
24	NEWPCC	#2 0-0-	204.54	29.2	59.73
25	NEWPCC	#2 0-0-	253.22	29.2	73.94
26	NEWPCC	#2 0-0-	177.22	29.2	51.75
27	NEWPCC	#2 0-0-	179.52	30.0	53.86
28	NEWPCC	#2 0-0-	151.42	30.8	46.64
31	NEWPCC	#2 0-0-	203.44	29.9	60.83

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	2727.70						
NEWPCC	#55 33-9-1E NE	1066.06	268.52	48.5	51703.910		268.52	
							268.52	

Monthly Hauling Report
For the Month 04/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#2 0-0-	203.14	29.1	59.11
02	NEWPCC	#2 0-0-	228.20	30.4	69.37
03	NEWPCC	#2 0-0-	201.60	27.5	55.44
04	NEWPCC	#2 0-0-	152.26	30.5	46.44
07	NEWPCC	#2 0-0-	152.06	33.0	50.18
08	NEWPCC	#2 0-0-	102.10	33.5	34.20
09	NEWPCC	#2 0-0-	126.76	33.3	42.21
10	NEWPCC	#2 0-0-	128.56	32.8	42.17
11	NEWPCC	#2 0-0-	219.64	32.2	70.73
14	NEWPCC	#2 0-0-	204.86	32.9	67.40
15	NEWPCC	#2 0-0-	104.60	32.3	33.79
16	NEWPCC	#2 0-0-	127.18	36.1	45.91
17	NEWPCC	#2 0-0-	154.20	31.5	48.57
18	NEWPCC	#2 0-0-	76.72	31.8	24.40
21	NEWPCC	#2 0-0-	102.88	32.1	33.03
22	NEWPCC	#2 0-0-	103.26	34.3	35.42
23	NEWPCC	#54 34-12-2W SE	306.88	28.3	86.85
24	NEWPCC	#54 34-12-2W SE	60.74	28.3	17.19
25	NEWPCC	#2 0-0-	248.98	30.6	76.19
28	NEWPCC	#54 34-12-2W SE	247.14	30.6	75.62
29	NEWPCC	#54 34-12-2W SE	241.48	32.6	78.72
30	NEWPCC	#54 34-12-2W SE	81.08	31.0	25.14

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	2637.00						
NEWPCC	#54 34-12-2W SE	937.32	283.51	57.0	53427.240		283.51	
							283.51	

Monthly Hauling Report
For the Month 05/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#54 34-12-2W SE	162.88	28.7	46.75
02	NEWPCC	#54 34-12-2W SE	163.56	29.6	48.41
05	NEWPCC	#54 34-12-2W SE	266.90	28.0	74.73
06	NEWPCC	#54 34-12-2W SE	163.62	27.1	44.34
07	NEWPCC	#54 34-12-2W SE	163.34	27.5	44.92
08	NEWPCC	#54 34-12-2W SE	81.12	29.7	24.09
09	NEWPCC	#54 34-12-2W SE	105.48	28.6	30.17
12	NEWPCC	#54 34-12-2W SE	209.38	26.9	56.32
14	NEWPCC	#54 34-12-2W SE	310.42	27.4	85.05
15	NEWPCC	#54 34-12-2W SE	286.78	25.9	74.28
16	NEWPCC	#54 34-12-2W SE	168.10	27.7	46.56
20	NEWPCC	#54 34-12-2W SE	291.32	26.5	77.20
21	NEWPCC	#54 34-12-2W SE	246.82	24.5	60.47
22	NEWPCC	#54 34-12-2W SE	187.04	24.7	46.20
23	NEWPCC	#54 34-12-2W SE	164.34	25.6	42.07
26	NEWPCC	#54 34-12-2W SE	310.96	24.6	76.50
27	NEWPCC	#54 34-12-2W SE	141.88	25.8	36.61
28	NEWPCC	#54 34-12-2W SE	170.38	24.5	41.74
29	NEWPCC	#54 34-12-2W SE	188.76	27.0	50.97
30	NEWPCC	#54 34-12-2W SE	161.40	25.3	40.83

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#54 34-12-2W SE	3944.48	1048.21	57.0	224835.360		1048.21	
							1048.21	

Monthly Hauling Report
For the Month 06/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#54 34-12-2W SE	353.80	25.2	89.16
03	NEWPCC	#54 34-12-2W SE	244.90	25.4	62.21
04	NEWPCC	#54 34-12-2W SE	123.62	26.0	32.14
05	NEWPCC	#54 34-12-2W SE	202.92	27.2	55.20
06	NEWPCC	#54 34-12-2W SE	41.54	25.0	10.39
12	NEWPCC	#2 0-0-	300.30	25.4	76.28
13	NEWPCC	#2 0-0-	241.50	25.0	60.37
16	NEWPCC	#2 0-0-	383.92	25.9	99.44
17	NEWPCC	#2 0-0-	202.12	27.7	55.99
18	NEWPCC	#54 34-12-2W SE	162.78	28.1	45.74
19	NEWPCC	#54 34-12-2W SE	196.06	28.5	55.88
20	NEWPCC	#54 34-12-2W SE	168.38	27.4	46.14
23	NEWPCC	#54 34-12-2W SE	350.92	27.1	95.10
24	NEWPCC	#54 34-12-2W SE	184.58	29.8	55.00
25	NEWPCC	#54 34-12-2W SE	173.04	29.4	50.87
26	NEWPCC	#54 34-12-2W SE	149.56	27.9	41.73
27	NEWPCC	#54 34-12-2W SE	227.30	27.8	63.19

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	1127.84						
NEWPCC	#54 34-12-2W SE	2579.40	702.73	57.0	147025.800		702.73	
							702.73	

Monthly Hauling Report
For the Month 07/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#54 34-12-2W SE	307.66	27.3	83.99
02	NEWPCC	#54 34-12-2W SE	225.48	27.3	61.56
03	NEWPCC	#54 34-12-2W SE	123.32	30.6	37.74
04	NEWPCC	#54 34-12-2W SE	162.50	30.0	48.75
07	NEWPCC	#56 35-12-2W SW	245.78	28.7	70.54
08	NEWPCC	#56 35-12-2W SW	287.68	28.7	82.56
09	NEWPCC	#56 35-12-2W SW	243.16	26.5	64.44
10	NEWPCC	#56 35-12-2W SW	166.80	26.1	43.54
14	NEWPCC	#2 0-0-	194.98	24.7	48.16
15	NEWPCC	#2 0-0-	273.80	24.8	67.90
16	NEWPCC	#2 0-0-	268.88	26.6	71.52
17	NEWPCC	#2 0-0-	122.56	25.6	31.38
18	NEWPCC	#2 0-0-	120.02	25.7	30.85
21	NEWPCC	#2 0-0-	50.12	26.4	13.23
21	NEWPCC	#56 35-12-2W SW	201.38	26.4	53.16
22	NEWPCC	#56 35-12-2W SW	199.34	25.4	50.63
23	NEWPCC	#56 35-12-2W SW	155.84	26.2	40.83
24	NEWPCC	#56 35-12-2W SW	158.46	25.6	40.57
25	NEWPCC	#56 35-12-2W SW	157.06	25.1	39.42
28	NEWPCC	#56 35-12-2W SW	305.82	24.5	74.93
29	NEWPCC	#56 35-12-2W SW	166.56	24.2	40.31
30	NEWPCC	#56 35-12-2W SW	166.82	25.8	43.04
31	NEWPCC	#56 35-12-2W SW	126.70	25.0	31.68

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	1030.36						
NEWPCC	#54 34-12-2W SE	818.96	232.03	57.0	46680.720		232.03	
NEWPCC	#56 35-12-2W SW	2581.40	675.64	57.0	147139.800		675.64	
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							907.67	

Monthly Hauling Report
For the Month 08/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#56 35-12-2W SW	128.04	25.6	32.78
05	NEWPCC	#56 35-12-2W SW	304.42	24.3	73.97
06	NEWPCC	#56 35-12-2W SW	302.24	23.6	71.33
07	NEWPCC	#56 35-12-2W SW	126.52	25.3	32.01
08	NEWPCC	#56 35-12-2W SW	170.02	24.6	41.83
11	NEWPCC	#56 35-12-2W SW	301.94	23.1	69.75
13	NEWPCC	#2 0-0-	254.68	22.3	56.80
14	NEWPCC	#2 0-0-	255.40	23.1	59.00
15	NEWPCC	#2 0-0-	230.34	24.3	55.97
18	NEWPCC	#2 0-0-	179.42	24.5	43.96
19	NEWPCC	#2 0-0-	150.30	23.7	35.62
20	NEWPCC	#56 35-12-2W SW	189.84	24.7	46.89
21	NEWPCC	#56 35-12-2W SW	165.36	25.2	41.67
25	NEWPCC	#2 0-0-	206.00	24.3	50.06
26	NEWPCC	#2 0-0-	202.20	25.4	51.36
27	NEWPCC	#2 0-0-	201.80	26.8	54.08
28	NEWPCC	#2 0-0-	93.60	26.6	24.90
29	NEWPCC	#2 0-0-	156.98	26.8	42.07

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	1930.72						
NEWPCC	#56 35-12-2W SW	1688.38	410.23	57.0	96237.660		410.23	
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							410.23	

Monthly Hauling Report
For the Month 09/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#2 0-0-	204.08	25.5	52.04
03	NEWPCC	#2 0-0-	123.54	24.8	30.64
08	NEWPCC	#2 0-0-	222.66	25.3	56.33
09	NEWPCC	#2 0-0-	202.68	26.6	53.91
10	NEWPCC	#2 0-0-	199.82	26.4	52.75
11	NEWPCC	#2 0-0-	234.14	25.8	60.41
12	NEWPCC	#2 0-0-	127.52	26.2	33.41
15	NEWPCC	#2 0-0-	202.82	25.3	51.31
16	NEWPCC	#56 35-12-2W SW	163.30	25.0	40.83
17	NEWPCC	#56 35-12-2W SW	189.84	25.7	48.79
18	NEWPCC	#56 35-12-2W SW	239.32	25.9	61.98
19	NEWPCC	#56 35-12-2W SW	258.96	25.5	66.04
22	NEWPCC	#56 35-12-2W SW	429.80	23.8	102.29
25	NEWPCC	#2 0-0-	307.64	24.2	74.45
26	NEWPCC	#2 0-0-	294.60	24.9	73.36
29	NEWPCC	#2 0-0-	71.26	27.1	19.31
29	NEWPCC	#56 35-12-2W SW	216.48	27.1	58.67
30	NEWPCC	#56 35-12-2W SW	209.38	24.1	50.46

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	2190.76						
NEWPCC	#56 35-12-2W SW	1707.08	429.05	57.0	97303.560		429.05	
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							429.05	

Monthly Hauling Report
For the Month 10/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#56 35-12-2W SW	170.06	23.6	40.14
02	NEWPCC	#56 35-12-2W SW	170.88	23.8	40.67
03	NEWPCC	#56 35-12-2W SW	169.49	24.4	41.36
06	NEWPCC	#56 35-12-2W SW	241.32	23.9	57.68
08	NEWPCC	#56 35-12-2W SW	340.90	23.7	80.79
09	NEWPCC	#56 35-12-2W SW	65.28	23.1	15.08
10	NEWPCC	#56 35-12-2W SW	108.50	22.8	24.74
14	NEWPCC	#2 0-0-	179.56	24.4	43.81
15	NEWPCC	#2 0-0-	231.96	21.6	50.10
16	NEWPCC	#2 0-0-	267.06	22.7	60.62
17	NEWPCC	#2 0-0-	338.58	23.0	77.87
20	NEWPCC	#2 0-0-	206.68	23.3	48.16
21	NEWPCC	#2 0-0-	202.04	24.8	50.11
22	NEWPCC	#2 0-0-	204.78	23.7	48.53
23	NEWPCC	#2 0-0-	99.20	23.6	23.41
24	NEWPCC	#2 0-0-	179.40	23.6	42.34
27	NEWPCC	#2 0-0-	253.70	26.1	66.22
28	NEWPCC	#2 0-0-	124.42	26.0	32.35
29	NEWPCC	#2 0-0-	103.74	25.3	26.25
30	NEWPCC	#2 0-0-	128.64	24.3	31.26
31	NEWPCC	#56 35-12-2W SW	131.54	23.8	31.31

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	2519.76						
NEWPCC	#56 35-12-2W SW	1397.97	331.75	57.0	79684.290		331.75	
							331.75	

Monthly Hauling Report
For the Month 11/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
03	NEWPCC	#56 35-12-2W SW	258.92	25.9	67.06
04	NEWPCC	#56 35-12-2W SW	298.08	25.2	75.12
05	NEWPCC	#56 35-12-2W SW	173.16	22.9	39.66
06	NEWPCC	#56 35-12-2W SW	170.42	23.6	40.22
07	NEWPCC	#56 35-12-2W SW	130.02	23.5	30.56
10	NEWPCC	#56 35-12-2W SW	217.66	23.4	50.93
12	NEWPCC	#56 35-12-2W SW	258.66	22.8	58.98
13	NEWPCC	#56 35-12-2W SW	259.90	23.2	60.30
14	NEWPCC	#56 35-12-2W SW	153.92	23.8	36.63
17	NEWPCC	#56 35-12-2W SW	219.28	23.4	51.31
18	NEWPCC	#56 35-12-2W SW	217.58	23.0	50.05
19	NEWPCC	#56 35-12-2W SW	313.18	25.5	79.86
20	NEWPCC	#56 35-12-2W SW	230.04	22.7	52.22
24	NEWPCC	#56 35-12-2W SW	151.36	21.7	32.85
28	NEWPCC	#56 35-12-2W SW	130.68	21.8	28.49

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#56 35-12-2W SW	3182.86	754.22	57.0	181423.020		754.22	
							754.22	

Monthly Hauling Report
For the Month 12/2008

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#56 35-12-2W SW	130.52	22.1	28.85
01	NEWPCC	#57 35-12-2W NE	175.66	22.1	38.82
02	NEWPCC	#57 35-12-2W NE	310.66	23.3	72.38
03	NEWPCC	#57 35-12-2W NE	182.40	23.3	42.50
04	NEWPCC	#57 35-12-2W NE	134.54	23.4	31.48
05	NEWPCC	#57 35-12-2W NE	133.80	24.4	32.65
08	NEWPCC	#57 35-12-2W NE	217.84	24.9	54.24
09	NEWPCC	#57 35-12-2W NE	225.34	24.5	55.21
10	NEWPCC	#57 35-12-2W NE	181.38	24.5	44.44
11	NEWPCC	#57 35-12-2W NE	113.16	24.0	27.16
12	NEWPCC	#57 35-12-2W NE	183.48	23.1	42.38
15	NEWPCC	#57 35-12-2W NE	179.82	24.2	43.52
16	NEWPCC	#57 35-12-2W NE	180.12	25.3	45.57
17	NEWPCC	#57 35-12-2W NE	265.86	25.5	67.80
18	NEWPCC	#57 35-12-2W NE	137.30	24.5	33.64
19	NEWPCC	#57 35-12-2W NE	139.80	24.0	33.55
22	NEWPCC	#57 35-12-2W NE	267.38	24.4	65.24
23	NEWPCC	#57 35-12-2W NE	46.38	24.0	11.13
24	NEWPCC	#57 35-12-2W NE	86.74	24.0	20.82
29	NEWPCC	#57 35-12-2W NE	257.60	26.1	67.23
30	NEWPCC	#57 35-12-2W NE	136.22	24.6	33.51
31	NEWPCC	#57 35-12-2W NE	137.34	22.2	30.49

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#56 35-12-2W SW	130.52	28.85	57.0	7439.640		28.85	
NEWPCC	#57 35-12-2W NE	3692.82	893.77	52.5	193873.050		893.77	
							922.61	

APPENDIX II

CORRESPONDENCE AND OTHER INFORMATION

Appendix II Footnote:
Appendix II includes correspondence and other information. Because of the personal information contained in these documents, they have been excluded from publication pursuant to the Manitoba Freedom of Information and Protection of Privacy Act (FIPPA).