Winnipeg

Water and Waste Department • Service des Eaux et des Déchets

January 31, 2006

Our File: 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 2005. Included in this report are:

(a) details of the 2005 biosolids distribution and monitoring programs
(b) details of the proposed 2006 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 Rockwood.

If you have any questions concerning the annual report please call Mr. Dan DeCraene at 986-4797 or me at 986-4807.

Yours truly,

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

AAZ:pr
Enclosure

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

Document1

Mailing Address/Adresse Postale: 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 31, 2006

Our File: 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 2005. Included in this report are:

(a) details of the 2005 biosolids distribution and monitoring programs
(b) details of the proposed 2006 biosolids distribution program

If you have any questions concerning the annual report please call Mr. Dan DeCraene at 986-4797 or me at 986-4807.

Yours truly,

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D. DeCraene

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Winnipeg

Water and Waste Department • Service des Eaux et des Déchets

January 31, 2006

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

Reeve and Council
Rural Municipality of Rockwood
Box 902
Stonewall, Manitoba
ROC 2ZO

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 2005. Included in this report are:

(a) details of the 2005 biosolids distribution and monitoring programs
(b) details of the proposed 2006 biosolids distribution program

If you have any questions concerning the annual report please call Mr. Dan DeCraene at 986-4797 or me at 986-4807.

Yours truly,

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

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D. DeCraene

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Winnipeg

Water and Waste Department • Service des Eaux et des Déchets

January 31, 2006

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

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

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 2005. Included in this report are:

(a) details of the 2005 biosolids distribution and monitoring programs
(b) details of the proposed 2006 biosolids distribution program

If you have any questions concerning the annual report please call Mr. Dan DeCraene at 986-4797 or me at 986-4807.

Yours truly,

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

AAZ:pr
Enclosure

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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 31, 2006

Our File: DWS 12

Reeve Bourgouin and Council
R.M. of Rosser
Box 131
Rosser, Manitoba
ROH 1EO

Dear Reeve Bourgouin and Council Members:

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

Each year the City of Winnipeg is required to report to Manitoba Conservation and the Rural Municipalities that have participated in our Biosolids Program (WinGRO) the results of our activities.

I have enclosed, for your information, a copy of our Annual Report for 2005. This report summarizes the events of our WinGRO Program in 2005 and proposed program for 2006.

If there are any questions you or your Council may have regarding the enclosed report, I will attempt to answer them for you.

Thank you for your interest.

Yours truly,

Dan DeCraene
Wastewater Contracts Supervisor
Telephone: (204) 986-4797

AAZ:pr
Enclosure

c: P.E.A. Lagassé, P.Eng.

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ENVIRONMENT ACT LICENCE #1089E RR

CITY OF WINNIPEG

ANNUAL COMPLIANCE REPORT:

FOR

BIOSOLIDS DEWATERING, TEMPORARY BIOSOLIDS STORAGE

AND

APPLICATION TO AGRICULTURAL LAND

2005

Submitted by: City of Winnipeg
Water & Waste Department

January 31, 2006

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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 2005 Biosolids Application Program (WINGRO) and also outlines the proposed program for the 2006 calendar year.

In 2005, the City produced 13,290 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 29.1%. The WINGRO program applied 68.6% of the annual biosolids production to farmland and deposited 31.4% at the Brady Road Landfill. The interim storage pad temporarily held 1.1% of the total annual biosolids produced in 2005.

The WINGRO biosolids application rate for the four fields completed in 2005 was 53.8 dry-tonnes per hectare on the 219.8 hectares to which biosolids were applied. For the 2006 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 Rural Municipalities; proposed lands will be sampled to ensure licence criteria are met and the application rate will not exceed 56 dry-tonnes per hectare.

Biosolids management technologies continue to be studied as part of the City's wastewater improvement initiatives.

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 2005 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 2005 Biosolids Land Application Program. The report also provides information on its proposed Biosolids Program for the twelve months starting January 1, 2006.

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

2005 BIOSOLIDS 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, 2005 to December 31, 2005 the City produced 13,290 dry-tonnes of

mechanically-dewatered biosolids at its NEWPCC facility. Appendix I contains the mechanical dewatering operating records for 2005. 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 29.1 ± 3.4% (*n* = 246).

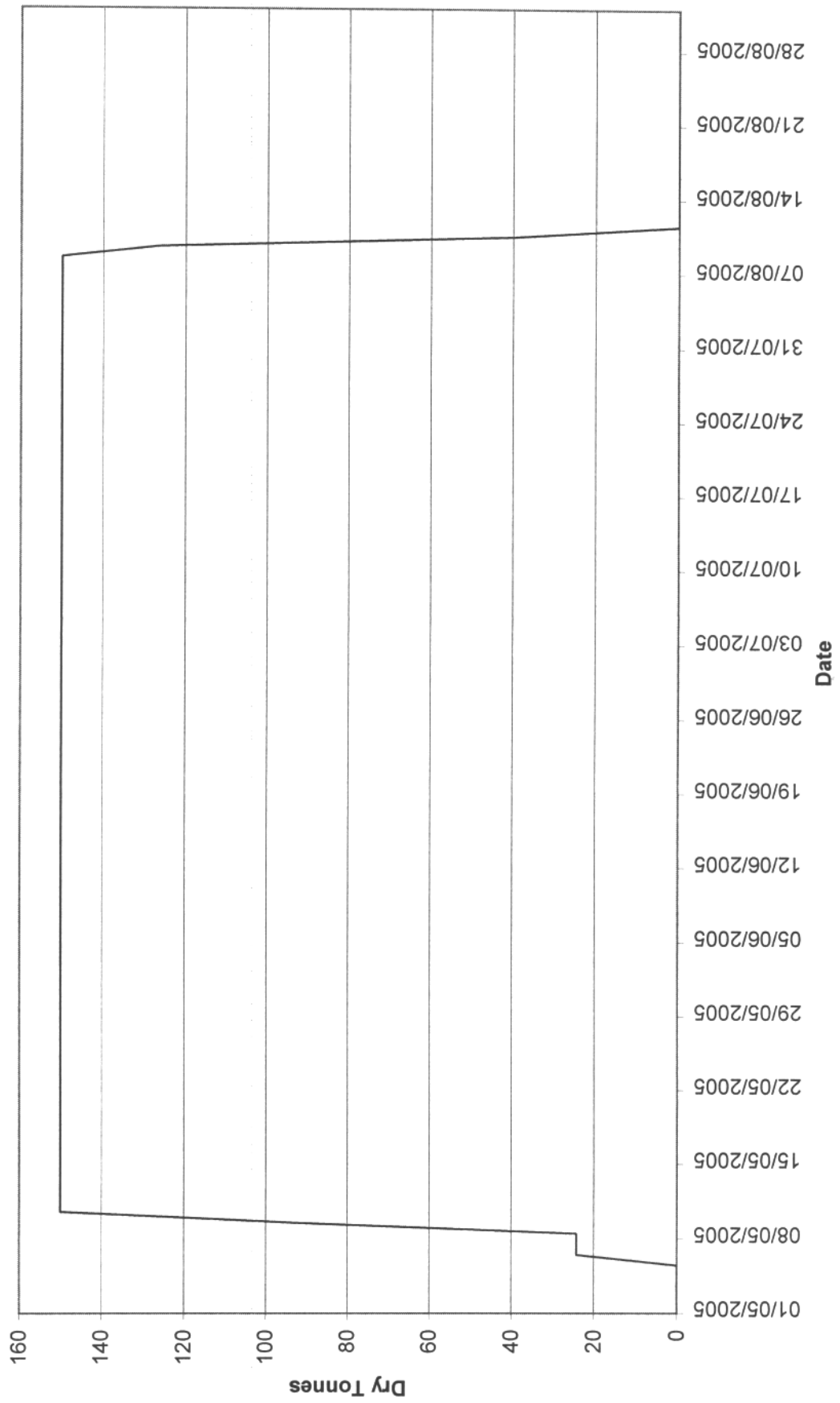
(b) Storage

"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 2005, the storage pad provided interim storage for 150 dry-tonnes of mechanically-dewatered biosolids. The tonnage processed through the interim holding pad represented 1.1% of the total mechanically-dewatered biosolids produced at the NEWPCC in 2005.

Interim stored biosolids were removed as soon as farmland was accessible. Figure 1 shows graphically the storage and removal of biosolids at the interim storage site during the four months that it was used in 2005.

Figure 1:
PAD INTERIM STORAGE of BIOSOLIDS during 2005



(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)).

Appendices I, II and III 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:

- % Solids in Mechanically Dewatered Biosoilds (2005)	Appendix I
- Biosolids Quality, Ditchwater	Appendix II
- Background Solids for Applied Fields (2005)	Appendix III

No formal odour complaints associated with the WINGRO Program were received in 2005.

(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))

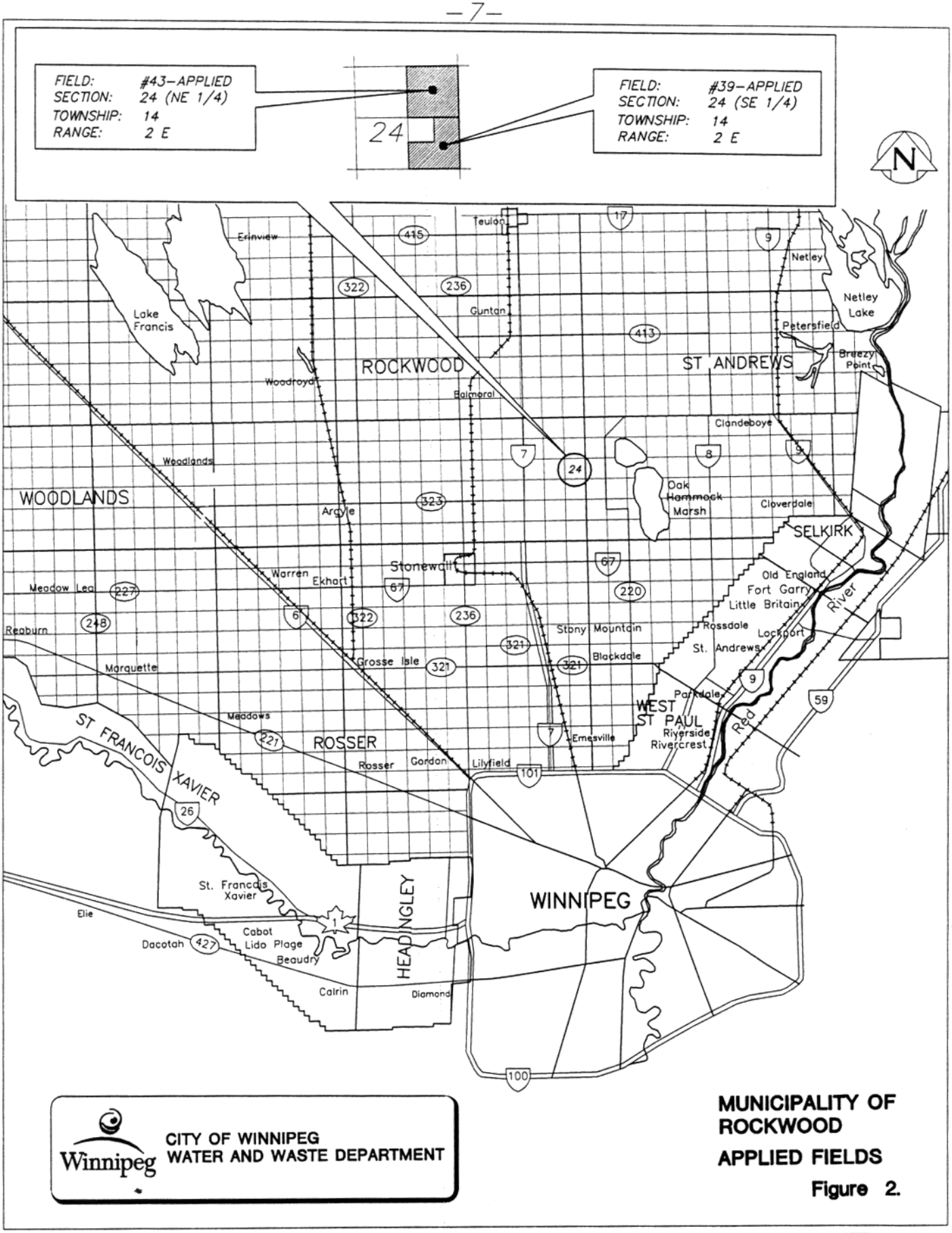
Of the 13,290 dry-tonnes of mechanically-dewatered biosolids produced at the NEWPCC from January 1, 2005 to December 31, 2005, 68.6% were re-cycled onto farmland through the WINGRO program, while 31.4% were disposed at the Brady Road Landfill. The City of Winnipeg's 2005 Biosolids Land Application Program (WINGRO) spread and incorporated digested, dewatered biosolids onto 4 parcels of land. A total of 11,833 dry-tonnes of dewatered biosolids were distributed on the four fields completed in 2005 at an average application rate of **53.8 dry-tonnes per hectare** on the 219.8 hectares of land utilized. Biosolids application to two parcels was incomplete at December 31, 2005 and will be reported in the year that the application is completed. Table 1 provides a detailed summary of results, and Figures 2,3 & 4 show the locations where biosolids were applied to fields in 2005.

TABLE 1
2005 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)
39	Rockwood	24-14-2E South East	2003/04	41.7	2,218	54.0
43	Rockwood	24-14-2E North East	2004/05	61.4	3,304	53.8
44	Macdonald	1-7-2W South West	2004/05	62.8	3,421	54.5
45*	Macdonald	6-7-1W South West	(2005)	(56.5)	(3,137)	Ongoing
46	Rockwood	2-14-2E North East	2005	53.9	2,890	53.6
47*	Macdonald	1-7-2W North	(2005)	(6.0)	(318)	Ongoing
Totals For Completed Fields				219.8	11,833	
Weighted Average For Completed Fields						53.8

* When completed, these fields will be included in future reports.

( ) Not Included in Totals



Winnipeg

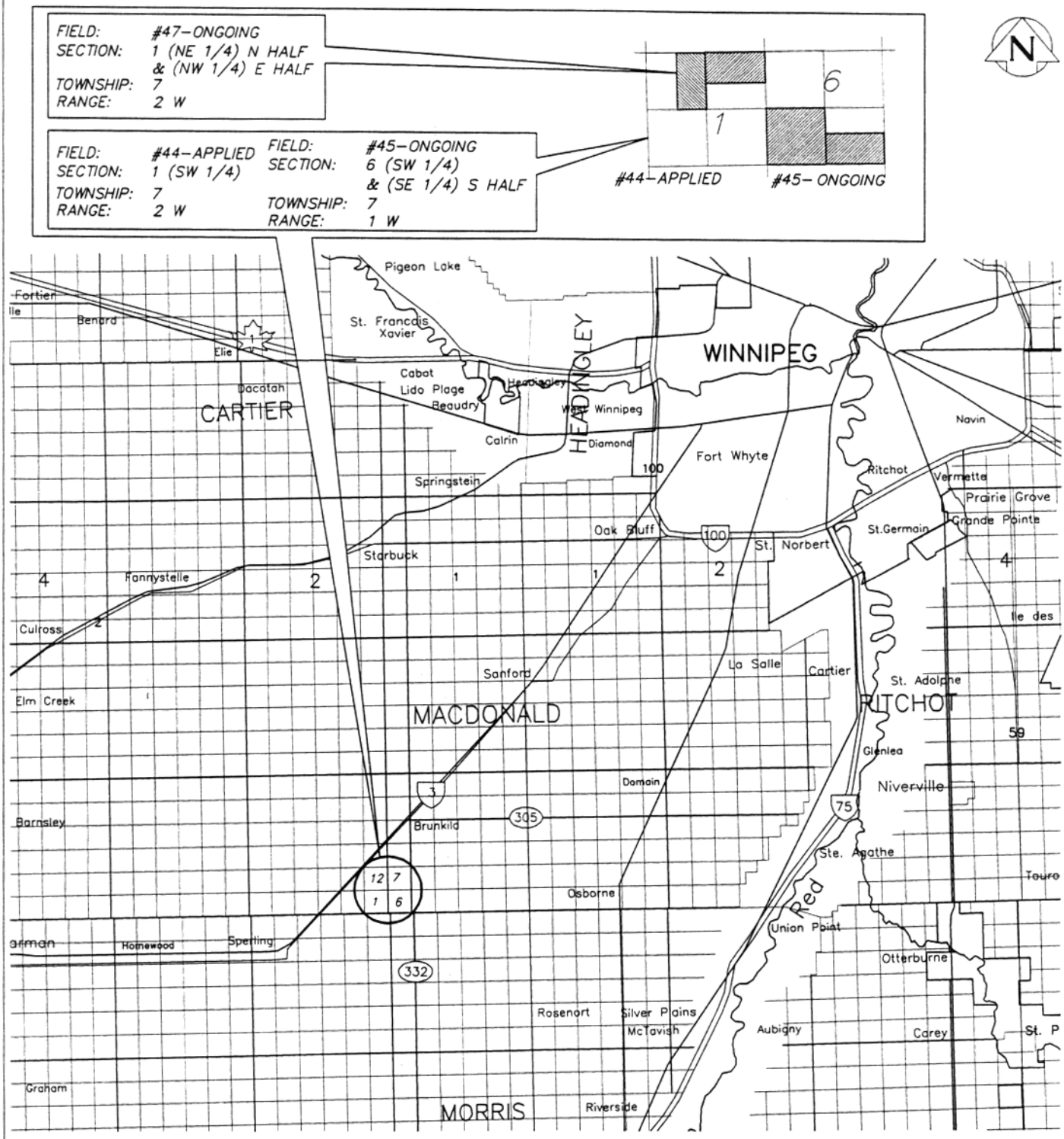
CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROCKWOOD

APPLIED FIELDS

Figure 2.

R:\DRAWINGS\SEWER\MISC\BIOSOLIDS_APPLICATION_FIGURES\WINGRO_2006\FIELD43_APPLIED_ROCKWOOD.dwg PLOTTED: 2006 01 17



CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF MACDONALD

APPLIED AND ONGOING FIELDS

Figure 3.

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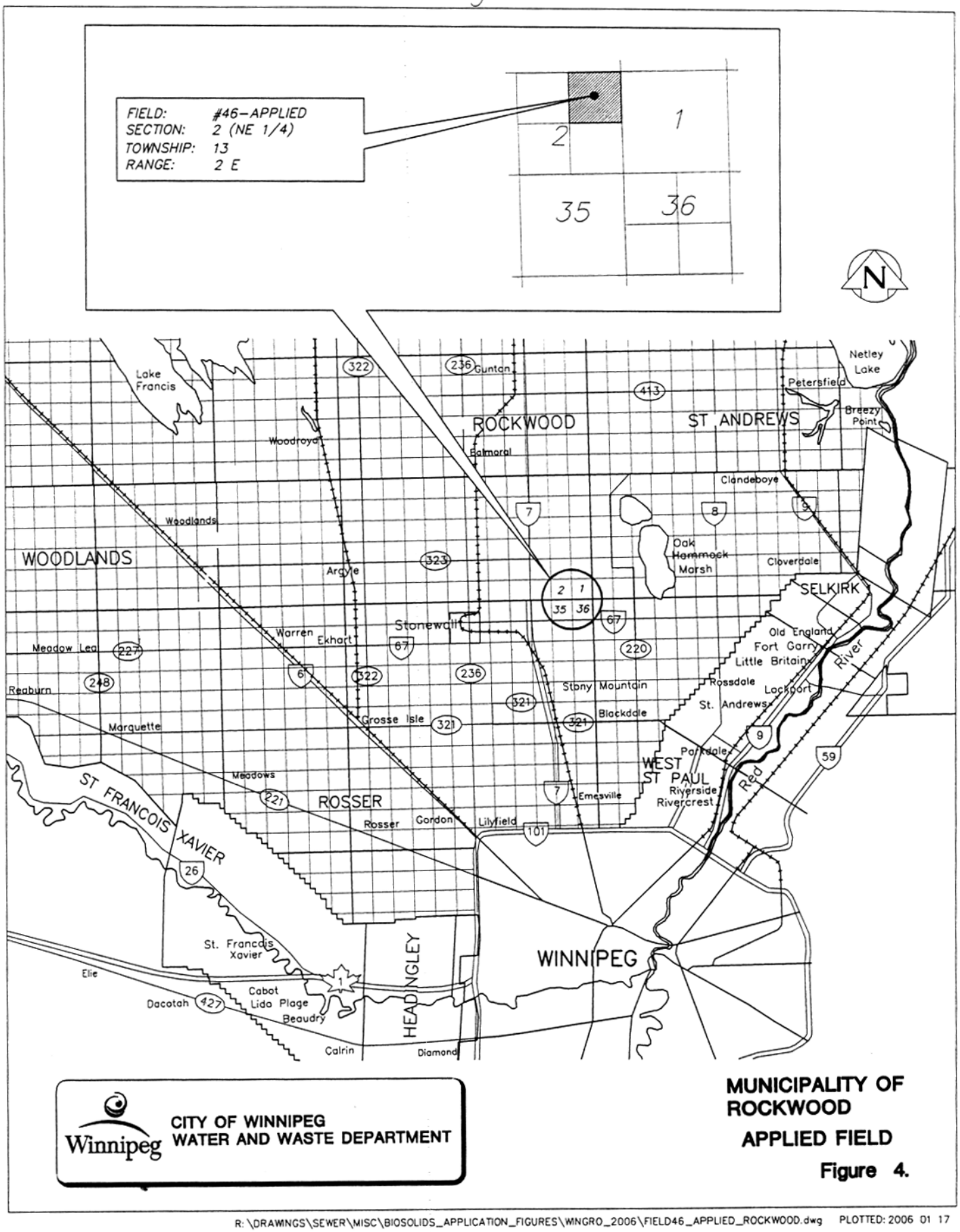

Winnipeg

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROCKWOOD

APPLIED FIELD

Figure 4.

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2005 PROPOSED BIOSOLIDS APPLICATION PROGRAMS

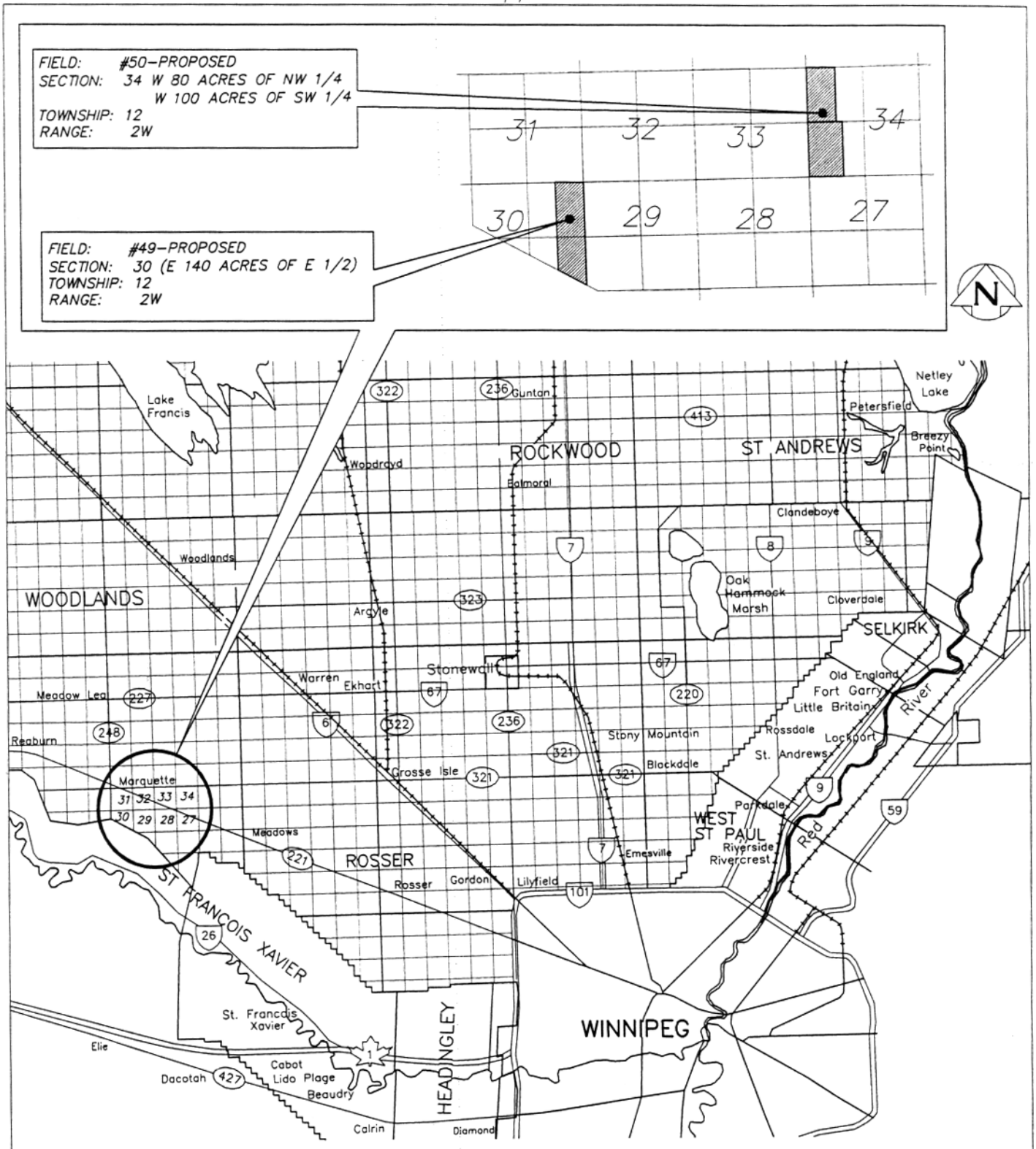
"details of the biosolids application program proposed to be carried out during the one-year period following the issuance of the report, including a description of the locations of the land on which application will be carried out, the proposed dates of application, and the proposed dry weight of biosolids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

In the 2006 WINGRO application year, which runs from January 1, 2006 to December 31, 2006, the City proposes to apply biosolids to several new parcels of land located in the R.M. of Rosser. Table 2 provides a description of these land parcels, and Figure 5 shows their locations. These two fields will be sampled in April, 2006 to ensure background soils meet licence criteria. Biosolids from the mechanical dewatering facility will be applied and incorporated into the 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 2
New Biosolids Application Areas Proposed For 2006

Land Parcel Identification Number	Description (Section-Township-Range)	Approximate Area (hectares)
49 P*	30-12-2W East Half	140
50 P*	34-12-2W North West and South West Quarters	180

* Located in the Rural Municipality of Rosser



Winnipeg **CITY OF WINNIPEG**
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF ROSSER

PROPOSED FIELDS

Figure 5.

R:\DRAWINGS\SEWER\MISC\BIOSOLIDS_APPLICATION_FIGURES\MNGRO_2006\FIELD49_50_PROPOSED_ROSSER.dwg PLOTTED: 2006 01 17

RESEARCH

"the Licencee shall cooperate with a Technical Advisory Committee formed for the purpose of examining and considering research ....." (Clause 18)

The following is a summary of research work that has been carried out and is ongoing as it pertains to the City's biosolids application program.

(a) Biosolids Management Study

On June 14, 2000, the City of Winnipeg's Environment Act Licence (1089E), regulating the City's biosolids management and application program (WINGRO), was amended twice to incorporate changes resulting from discussions between the City and Manitoba Conservation. The licence is now identified as Environment Act Licence 1089E RR.

Pursuant to Clause 26 of the former Licence 1089E, and Clause 18 of the current Licence 1089E RR, the City has worked with a Technical Advisory Committee (TAC) to examine and consider research, development, planning, and operating data and information concerning the City's biosolids production and application operations.

Following the TAC meeting of June 9, 2000, it was agreed that the City, as the proponent, would draft discussion documents (position papers) pertaining to three key technical issues
identified by the TAC. These three key issues were:

1) nutrient application rates
2) maximum metals loading in soils
3) winter application of biosolids.

Each position paper would include a proposal on how the respective issues should be regulated in an amended licence. The position papers would cite technical references and

relevant research.

The three position papers would be reviewed by the TAC, after which the City would forward the papers, with revisions and other documents, to the Director of Environmental Approvals, as the first step in the licence review process.

In August, 2001, the City engaged the services of Wardrop Engineering, Inc., in association with R.V. Anderson Associates, and Brown and Caldwell Consulting Engineers, to prepare the three position papers and all other relevant information for the review of the current biosolids operating licence. In addition, after consultation with the City, Wardrop Engineering, Inc. prepared a fourth paper discussing background and regulatory issues.

As part of this project, the consultant will also identify and provide engineering designs and cost estimates for several alternative biosolids management processes. A summary of these processes will be included in the City's proposal to Manitoba Conservation, to provide a comparison of their cost and complexity to the current operations.

To date, draft outlines of the position papers have been prepared and reviewed. Draft position papers were prepared by the consultant, and reviewed by the City, Manitoba Conservation and the TAC in 2002. In addition, a research paper, discussing health issues related to biosolids application to soil, was requested by the TAC. A draft of this report was prepared in November, 2002 for review.

To assist the City with the preparation of the position papers and development of possible new biosolids management technologies, a Public Participation Group has been created. This group represents agricultural, public health, environmental, academic, economic, regulatory and political interests. Since the study began, four Public Participation Group meetings have been held. A fifth meeting is being planned. Also, a series of Open Houses are being planned for 2005. The Open Houses will provide an informal opportunity to the City and its Consultants to discuss biosolids management issues and

the City's future plans with the public. Open Houses are planned for North Winnipeg, South Winnipeg and the South Interlake rural area.

This study is ongoing.

(b) Windrow Composting of Biosolids

The Water and Waste Department collaborated with the Faculty of Engineering of the University of Manitoba to study windrow composting of biosolids in a cold climate, using woodchips as an amendment. The objective of this work was to determine if biosolids composting in Winnipeg would be a viable end-use alternative to the City's current WINGRO biosolids management operations. Preparatory work, including bench-scale studies to determine biosolids/feedstock recipes, and to procure equipment, began in January, 2001. Full-scale batch operations were conducted in 2001/2002. Performance indicators, such as volatile solids reduction, windrow temperature, pore space oxygen, pathogen destruction and odour levels, were monitored.

For the City of Winnipeg, the key technical issue was to determine if adequate composting temperatures could be achieved in a windrow composting system during a prairie winter. Accordingly, three full-scale trials were conducted under the following conditions: (1) batch started in late Fall; (2) batch started in Winter; and (3) batch mixed and stored over Winter, then started in Spring. All recipes used 2.5 parts woodchips to 1 part biosolids (by volume), resulting in starting moisture contents of about 60% and free air space of 20%. All trials met the thermophilic pathogen reduction criteria, achieving temperatures >55^{O}C for 46, 83, and 72 days, being turned 9, 12, and 11 times, for respective trials #1 through #3. Trial #2 (batch started in Winter), however, did not achieve the thermophilic period until the following Summer. A lag time (time from start-up to 55^{O}C) of 2 to 3 weeks was observed in these trials.

During the Winter of 2002/2003, a fourth trial was conducted using leaves and woodchips as amendments, to evaluate the benefit of adding leaves to the biosolids feedstock. Leaf

addition resulted in significantly faster start-up times, reducing the lag to only 4 days, with significant increases ($6^{O}C$) in observed pile temperatures.

(c) Energy Production

Sun Gas Energy Corporation, in collaboration with the City, the University of Manitoba and Manitoba Hydro, carried out a pilot-scale evaluation of a gasification system for the conversion of municipal biosolids to biogas. Testing was carried out at the Glenlea Research Station in 2003 to determine if municipal biosolids could be utilized as a source of renewable energy. A final report summarizing the results of this work is expected from the University of Manitoba.

(d) Biomass Ozonation

The Water and Waste Department is collaborating with the Faculty of Engineering, University of Manitoba to determine the efficacy of utilizing ozone to reduce the biomass component of biosolids, and to ultimately reduce disposal costs. Ozone pre-treatment of sludge has been shown elsewhere to result in improved solids reduction efficiencies during anaerobic digestion, leading to higher methane recovery. Ozonation may also be a promising method of generating carbon (COD) for the denitrification step of the advanced wastewater treatment that will be required at the North End Water Pollution Control Centre. As well, ozonation may reduce Endocrine Disrupting Compounds (EDC's) – an emerging issue for wastewater treatment operations.

A series of bench-scale experiments will be conducted, where the return activated sludge (RAS) of an experimental reactor will be partially ozonated to stimulate the heterotrophic biomass, to reduce the volume and mass of waste activated sludge (WAS). The work will also study the degradation and fate of the EDC synthetic hormone, ethinylestradiol. The researchers will experiment with various doses of ozone to determine the lowest achievable WAS production and the maximum destruction of primary (EDC) hormone bonds, while preserving the vulnerable nitrifying bacterial population.

The research is proposed to take 10 months. A report should be available in 2005.

APPENDIX I

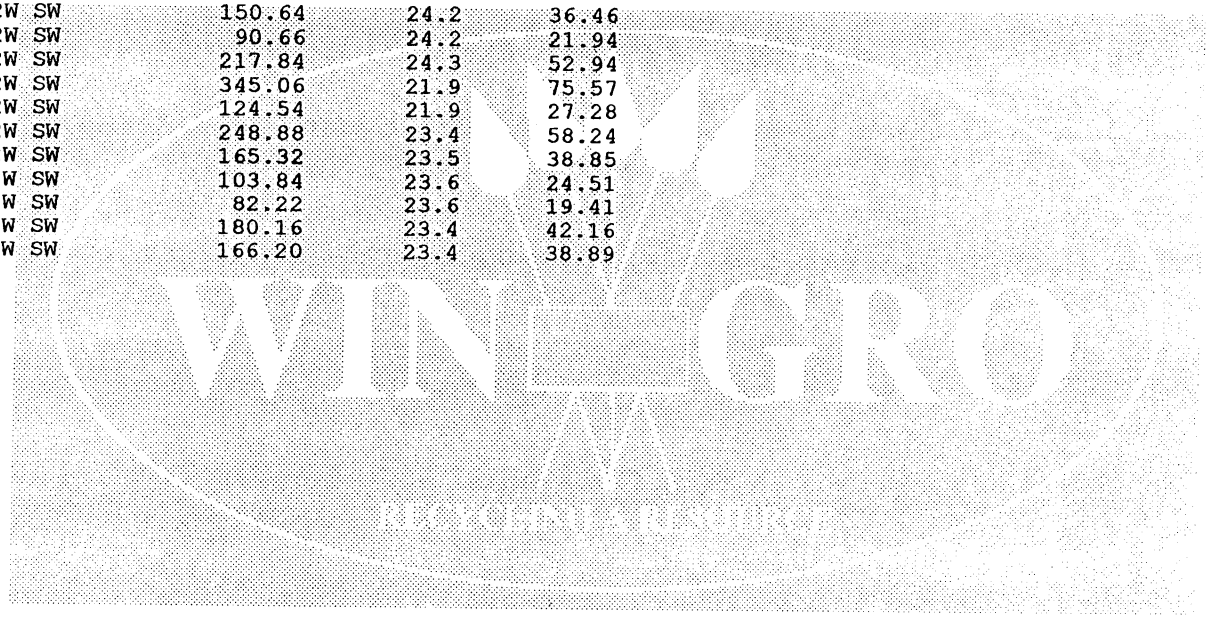
OPERATING RECORDS

for

MECHANICAL DEWATERING OF BIOSOLIDS

Monthly Hauling Report
For the Month 01/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
04	NEWPCC	#44 1-7-2W SW	213.34	24.5	52.27
05	NEWPCC	#44 1-7-2W SW	125.76	24.5	30.81
06	NEWPCC	#44 1-7-2W SW	248.58	27.1	67.37
07	NEWPCC	#44 1-7-2W SW	249.82	23.9	59.71
08	NEWPCC	#44 1-7-2W SW	124.90	23.9	29.85
10	NEWPCC	#44 1-7-2W SW	184.00	24.3	44.71
11	NEWPCC	#44 1-7-2W SW	244.56	24.1	58.94
12	NEWPCC	#44 1-7-2W SW	124.20	24.1	29.93
13	NEWPCC	#44 1-7-2W SW	82.94	24.1	19.99
14	NEWPCC	#44 1-7-2W SW	150.64	24.2	36.46
18	NEWPCC	#44 1-7-2W SW	90.66	24.2	21.94
19	NEWPCC	#44 1-7-2W SW	217.84	24.3	52.94
20	NEWPCC	#44 1-7-2W SW	345.06	21.9	75.57
21	NEWPCC	#44 1-7-2W SW	124.54	21.9	27.28
24	NEWPCC	#44 1-7-2W SW	248.88	23.4	58.24
25	NEWPCC	#44 1-7-2W SW	165.32	23.5	38.85
26	NEWPCC	#44 1-7-2W SW	103.84	23.6	24.51
27	NEWPCC	#44 1-7-2W SW	82.22	23.6	19.41
28	NEWPCC	#44 1-7-2W SW	180.16	23.4	42.16
31	NEWPCC	#44 1-7-2W SW	166.20	23.4	38.89

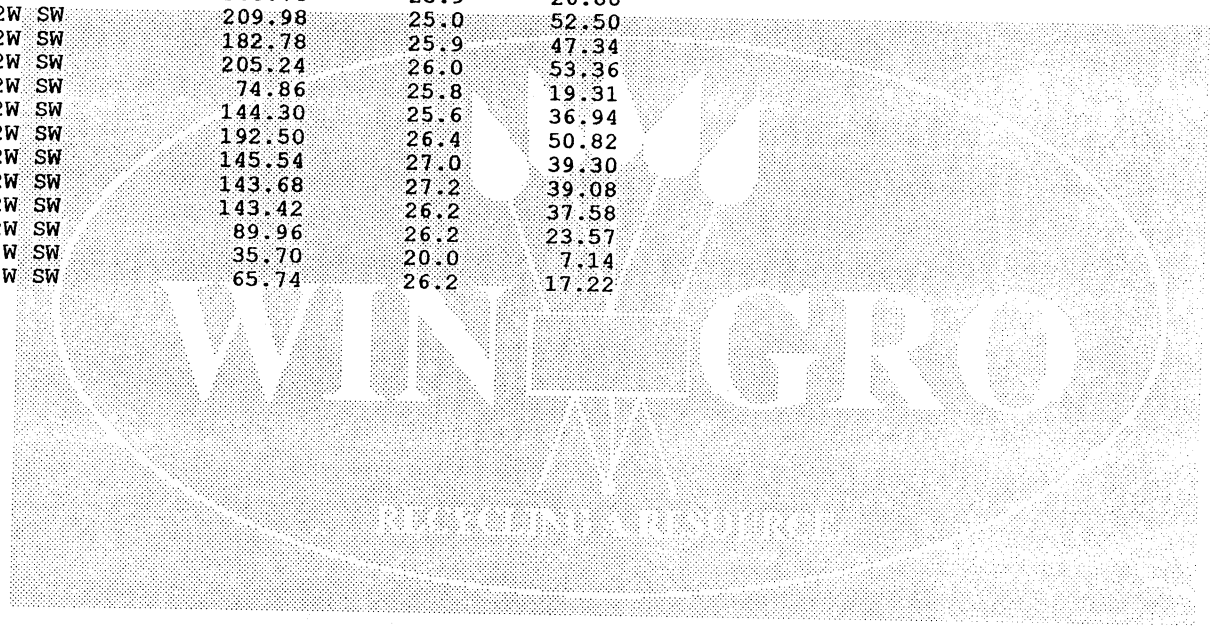


Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#44 1-7-2W SW	3473.46	829.80	85.0	295244.100		829.80	
							829.80	

Monthly Hauling Report
For the Month 02/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#44 1-7-2W SW	186.82	24.2	45.21
02	NEWPCC	#44 1-7-2W SW	120.52	25.3	30.49
03	NEWPCC	#44 1-7-2W SW	167.36	25.2	42.17
04	NEWPCC	#44 1-7-2W SW	162.74	25.0	40.69
07	NEWPCC	#44 1-7-2W SW	165.32	24.6	40.67
08	NEWPCC	#44 1-7-2W SW	246.80	25.5	62.93
09	NEWPCC	#44 1-7-2W SW	184.56	24.7	45.59
10	NEWPCC	#44 1-7-2W SW	120.38	24.8	29.86
11	NEWPCC	#44 1-7-2W SW	103.78	25.9	26.88
14	NEWPCC	#44 1-7-2W SW	209.98	25.0	52.50
15	NEWPCC	#44 1-7-2W SW	182.78	25.9	47.34
16	NEWPCC	#44 1-7-2W SW	205.24	26.0	53.36
17	NEWPCC	#44 1-7-2W SW	74.86	25.8	19.31
18	NEWPCC	#44 1-7-2W SW	144.30	25.6	36.94
21	NEWPCC	#44 1-7-2W SW	192.50	26.4	50.82
22	NEWPCC	#44 1-7-2W SW	145.54	27.0	39.30
23	NEWPCC	#44 1-7-2W SW	143.68	27.2	39.08
24	NEWPCC	#44 1-7-2W SW	143.42	26.2	37.58
25	NEWPCC	#44 1-7-2W SW	89.96	26.2	23.57
27	NEWPCC	#45 6-7-1W SW	35.70	20.0	7.14
28	NEWPCC	#45 6-7-1W SW	65.74	26.2	17.22

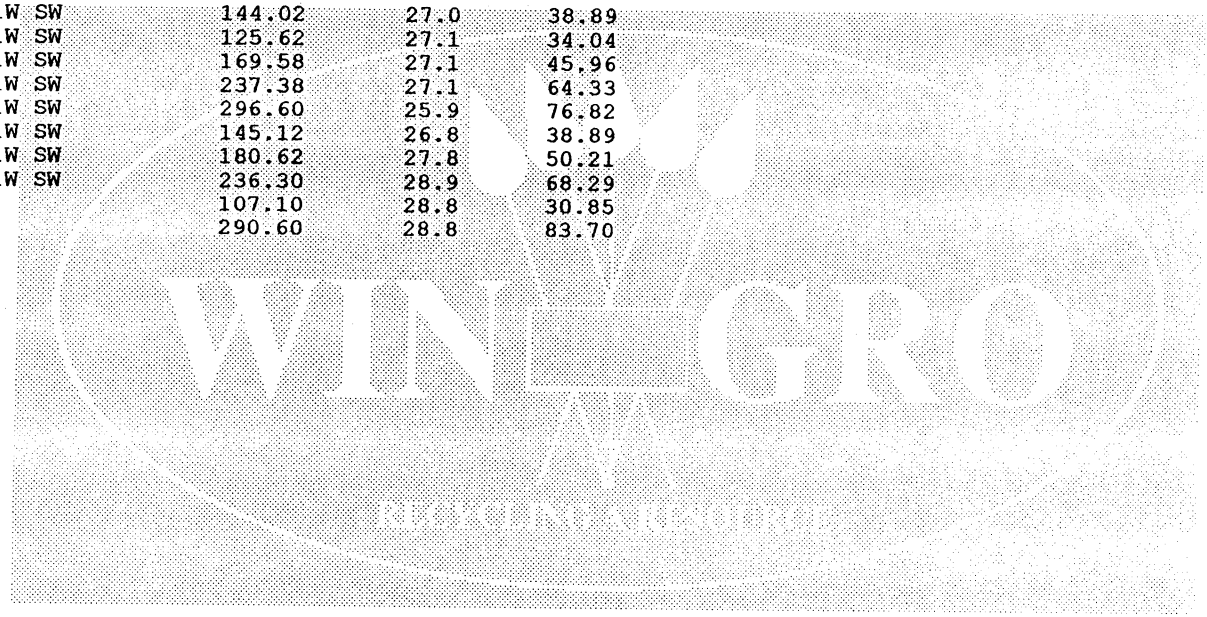


Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#44 1-7-2W SW	2990.54	764.28	85.0	254195.900		764.28	
NEWPCC	#45 6-7-1W SW	101.44	24.36	85.0	8622.400		24.36	
							788.64	

Monthly Hauling Report
For the Month 03/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#45 6-7-1W SW	171.10	25.8	44.14
03	NEWPCC	#45 6-7-1W SW	191.70	25.0	47.93
04	NEWPCC	#45 6-7-1W SW	269.66	27.0	72.81
07	NEWPCC	#45 6-7-1W SW	289.94	25.6	74.23
08	NEWPCC	#45 6-7-1W SW	286.82	24.5	70.27
09	NEWPCC	#45 6-7-1W SW	219.42	25.8	56.61
11	NEWPCC	#45 6-7-1W SW	270.20	24.9	67.28
14	NEWPCC	#45 6-7-1W SW	317.38	25.8	81.88
15	NEWPCC	#45 6-7-1W SW	161.58	26.6	42.98
16	NEWPCC	#45 6-7-1W SW	144.02	27.0	38.89
17	NEWPCC	#45 6-7-1W SW	125.62	27.1	34.04
18	NEWPCC	#45 6-7-1W SW	169.58	27.1	45.96
21	NEWPCC	#45 6-7-1W SW	237.38	27.1	64.33
22	NEWPCC	#45 6-7-1W SW	296.60	25.9	76.82
23	NEWPCC	#45 6-7-1W SW	145.12	26.8	38.89
24	NEWPCC	#45 6-7-1W SW	180.62	27.8	50.21
29	NEWPCC	#45 6-7-1W SW	236.30	28.9	68.29
30	NEWPCC	#2 0-0-	107.10	28.8	30.85
31	NEWPCC	#2 0-0-	290.60	28.8	83.70

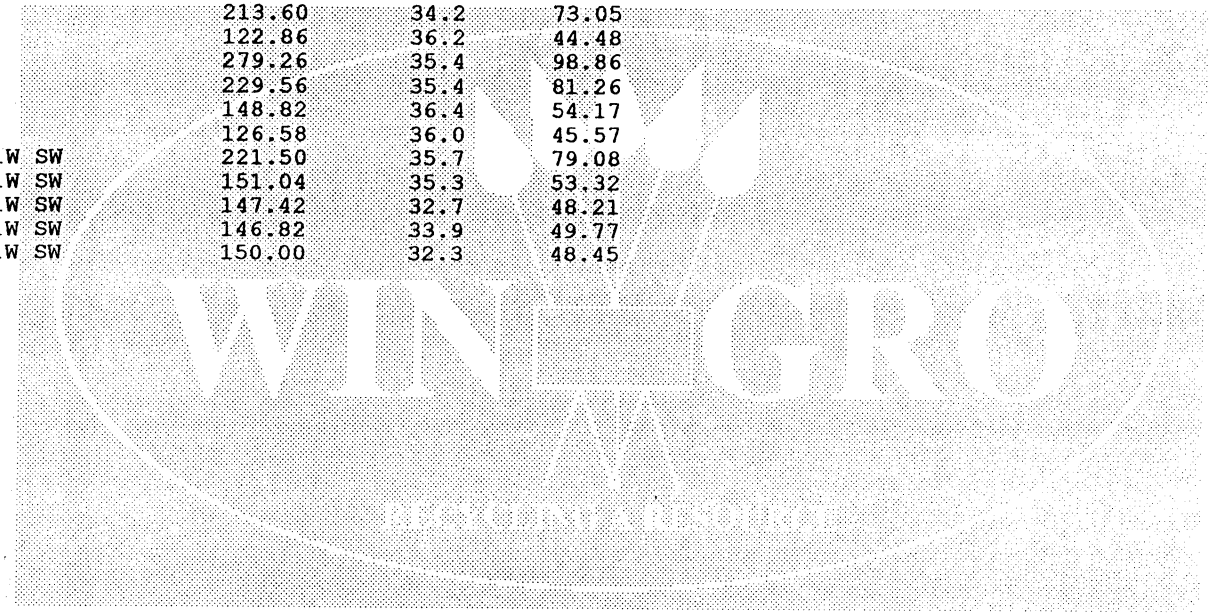


Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	397.70						
NEWPCC	#45 6-7-1W SW	3713.04	975.55	85.0	315608.400		975.55	
							975.55	

Monthly Hauling Report
For the Month 04/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#2 0-0-	264.48	30.0	79.34
04	NEWPCC	#2 0-0-	282.70	32.0	90.47
05	NEWPCC	#2 0-0-	196.46	34.1	66.99
06	NEWPCC	#2 0-0-	219.86	34.3	75.41
07	NEWPCC	#2 0-0-	227.18	33.2	75.42
08	NEWPCC	#2 0-0-	149.26	33.2	49.55
11	NEWPCC	#2 0-0-	102.92	33.2	34.17
12	NEWPCC	#2 0-0-	223.84	32.2	72.08
13	NEWPCC	#2 0-0-	248.24	32.3	80.18
14	NEWPCC	#2 0-0-	213.60	34.2	73.05
15	NEWPCC	#2 0-0-	122.86	36.2	44.48
18	NEWPCC	#2 0-0-	279.26	35.4	98.86
19	NEWPCC	#2 0-0-	229.56	35.4	81.26
20	NEWPCC	#2 0-0-	148.82	36.4	54.17
21	NEWPCC	#2 0-0-	126.58	36.0	45.57
25	NEWPCC	#45 6-7-1W SW	221.50	35.7	79.08
26	NEWPCC	#45 6-7-1W SW	151.04	35.3	53.32
27	NEWPCC	#45 6-7-1W SW	147.42	32.7	48.21
28	NEWPCC	#45 6-7-1W SW	146.82	33.9	49.77
29	NEWPCC	#45 6-7-1W SW	150.00	32.3	48.45

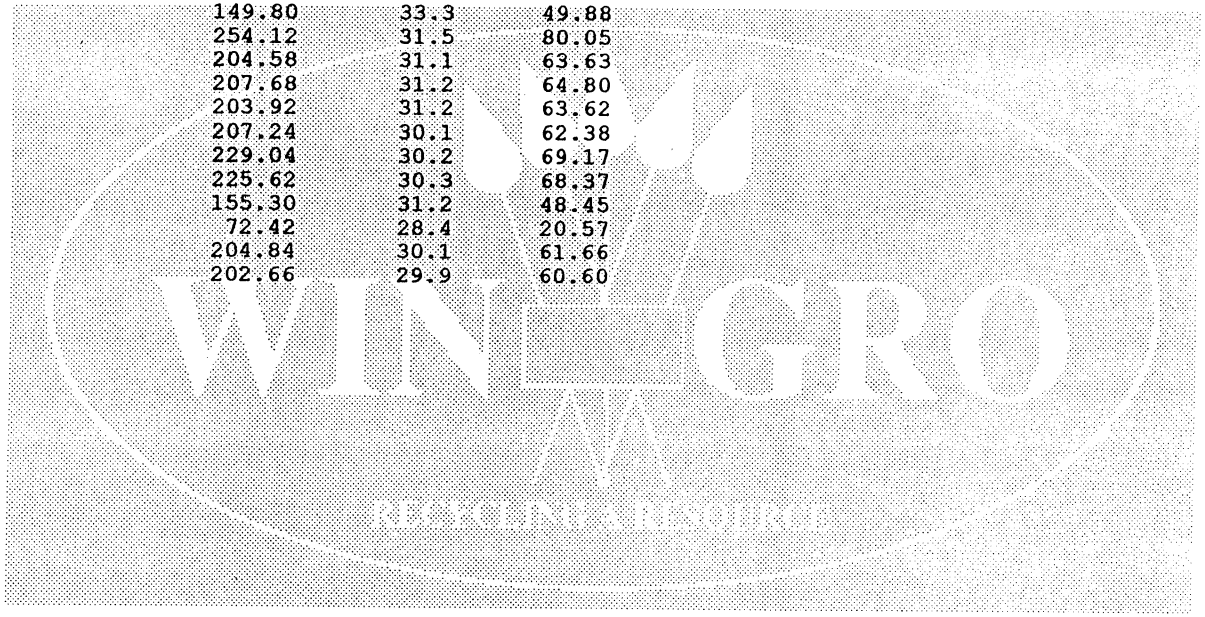


Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	3035.62						
NEWPCC	#45 6-7-1W SW	816.78	278.82	85.0	69426.300		278.82	
							278.82	

Monthly Hauling Report
For the Month 05/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#45 6-7-1W SW	227.12	33.3	75.63
03	NEWPCC	#45 6-7-1W SW	222.72	33.2	73.94
04	NEWPCC	#45 6-7-1W SW	146.32	32.4	47.41
05	NEWPCC	#45 6-7-1W SW	153.60	31.6	48.54
06	NEWPCC	#1 0-0-	77.08	31.4	24.20
09	NEWPCC	#1 0-0-	222.30	31.2	69.36
10	NEWPCC	#1 0-0-	180.78	31.2	56.40
11	NEWPCC	#2 0-0-	201.26	31.9	64.20
12	NEWPCC	#2 0-0-	147.08	32.6	47.95
13	NEWPCC	#2 0-0-	149.80	33.3	49.88
16	NEWPCC	#2 0-0-	254.12	31.5	80.05
17	NEWPCC	#2 0-0-	204.58	31.1	63.63
18	NEWPCC	#2 0-0-	207.68	31.2	64.80
19	NEWPCC	#2 0-0-	203.92	31.2	63.62
20	NEWPCC	#2 0-0-	207.24	30.1	62.38
24	NEWPCC	#2 0-0-	229.04	30.2	69.17
25	NEWPCC	#2 0-0-	225.62	30.3	68.37
26	NEWPCC	#2 0-0-	155.30	31.2	48.45
27	NEWPCC	#2 0-0-	72.42	28.4	20.57
30	NEWPCC	#2 0-0-	204.84	30.1	61.66
31	NEWPCC	#2 0-0-	202.66	29.9	60.60

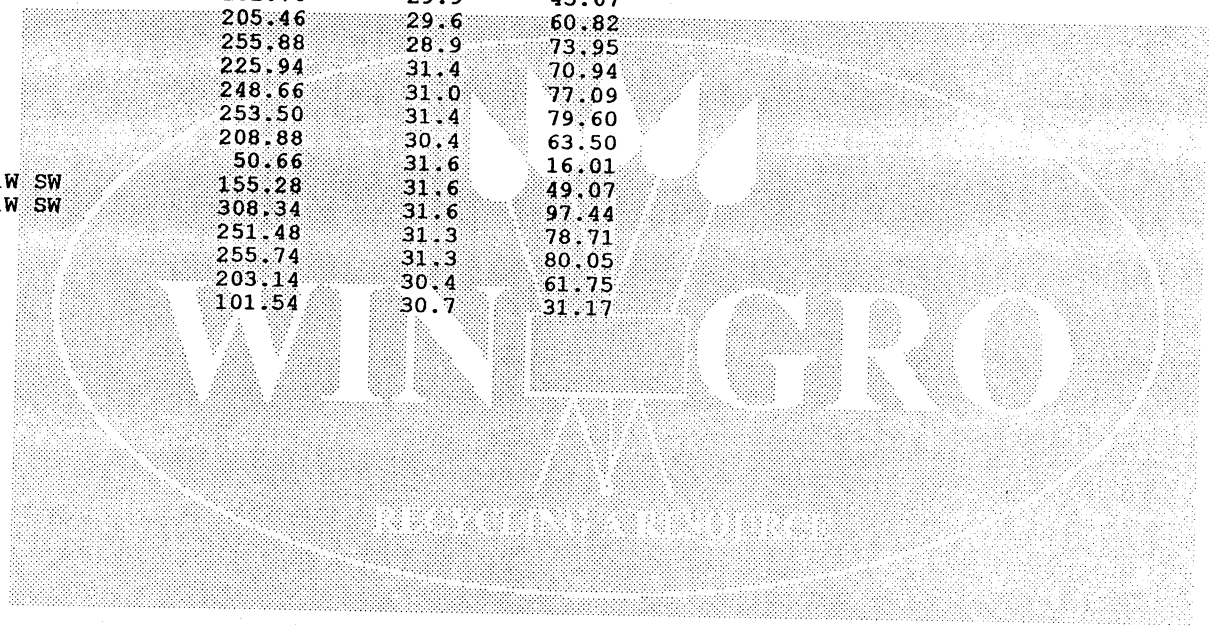


Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#1 0-0-		149.97					
NEWPCC	#2 0-0-	2665.56						
NEWPCC	#45 6-7-1W SW	749.76	245.52	85.0	63729.600		245.52	
							245.52	

Monthly Hauling Report
For the Month 06/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#2 0-0-	152.12	29.4	44.72
02	NEWPCC	#2 0-0-	149.52	32.1	48.00
06	NEWPCC	#2 0-0-	103.56	28.8	29.83
07	NEWPCC	#2 0-0-	70.84	29.8	21.11
08	NEWPCC	#2 0-0-	101.40	28.6	29.00
09	NEWPCC	#2 0-0-	100.46	28.2	28.33
10	NEWPCC	#2 0-0-	194.60	30.5	59.35
13	NEWPCC	#2 0-0-	202.62	29.9	60.58
14	NEWPCC	#2 0-0-	152.76	29.9	45.67
15	NEWPCC	#2 0-0-	205.46	29.6	60.82
16	NEWPCC	#2 0-0-	255.88	28.9	73.95
17	NEWPCC	#2 0-0-	225.94	31.4	70.94
20	NEWPCC	#2 0-0-	248.66	31.0	77.09
21	NEWPCC	#2 0-0-	253.50	31.4	79.60
22	NEWPCC	#2 0-0-	208.88	30.4	63.50
23	NEWPCC	#2 0-0-	50.66	31.6	16.01
23	NEWPCC	#45 6-7-1W SW	155.28	31.6	49.07
24	NEWPCC	#45 6-7-1W SW	308.34	31.6	97.44
27	NEWPCC	#2 0-0-	251.48	31.3	78.71
28	NEWPCC	#2 0-0-	255.74	31.3	80.05
29	NEWPCC	#2 0-0-	203.14	30.4	61.75
30	NEWPCC	#2 0-0-	101.54	30.7	31.17

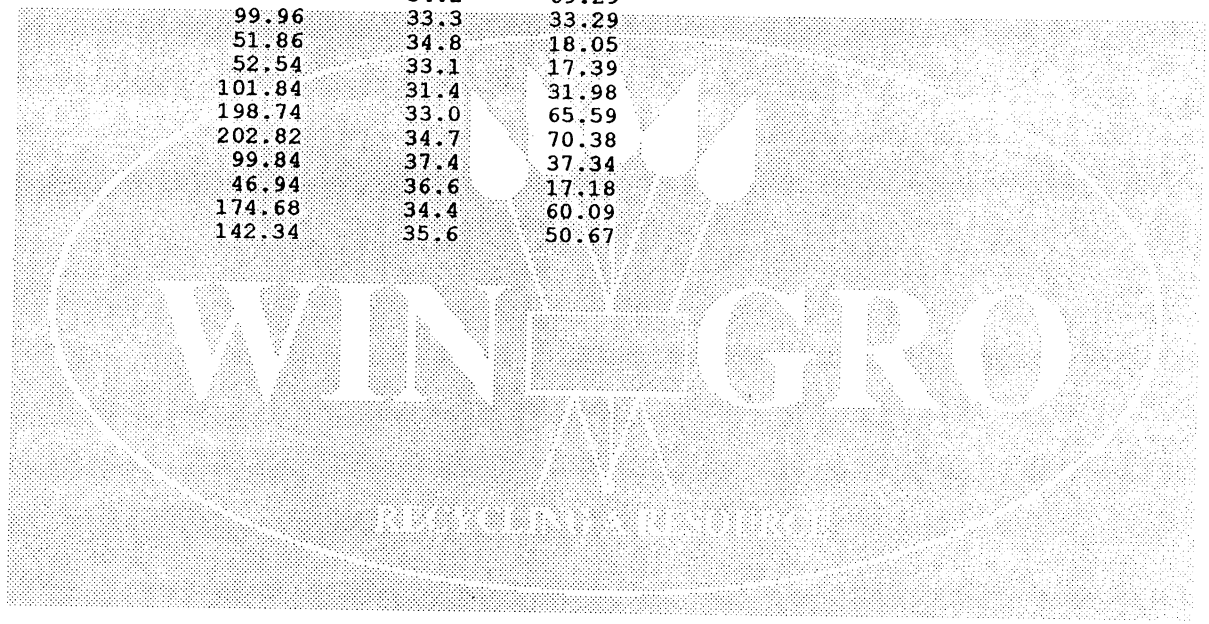


Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#2 0-0-	3488.76						
NEWPCC	#45 6-7-1W SW	463.62	146.51	85.0	39407.700		146.51	
							146.51	

Monthly Hauling Report
For the Month 07/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
04	NEWPCC	#2 0-0-	255.62	27.7	70.81
05	NEWPCC	#2 0-0-	145.68	27.7	40.35
07	NEWPCC	#2 0-0-	77.68	36.1	28.04
08	NEWPCC	#2 0-0-	124.16	36.0	44.70
11	NEWPCC	#2 0-0-	198.90	34.1	67.82
12	NEWPCC	#2 0-0-	148.06	35.1	51.97
13	NEWPCC	#2 0-0-	100.80	35.0	35.28
14	NEWPCC	#2 0-0-	179.14	33.5	60.01
15	NEWPCC	#2 0-0-	202.60	34.2	69.29
18	NEWPCC	#2 0-0-	99.96	33.3	33.29
19	NEWPCC	#2 0-0-	51.86	34.8	18.05
20	NEWPCC	#2 0-0-	52.54	33.1	17.39
21	NEWPCC	#2 0-0-	101.84	31.4	31.98
22	NEWPCC	#2 0-0-	198.74	33.0	65.59
25	NEWPCC	#2 0-0-	202.82	34.7	70.38
26	NEWPCC	#2 0-0-	99.84	37.4	37.34
27	NEWPCC	#2 0-0-	46.94	36.6	17.18
28	NEWPCC	#2 0-0-	174.68	34.4	60.09
29	NEWPCC	#2 0-0-	142.34	35.6	50.67



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-	2604.20						
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Monthly Hauling Report
For the Month 08/2005

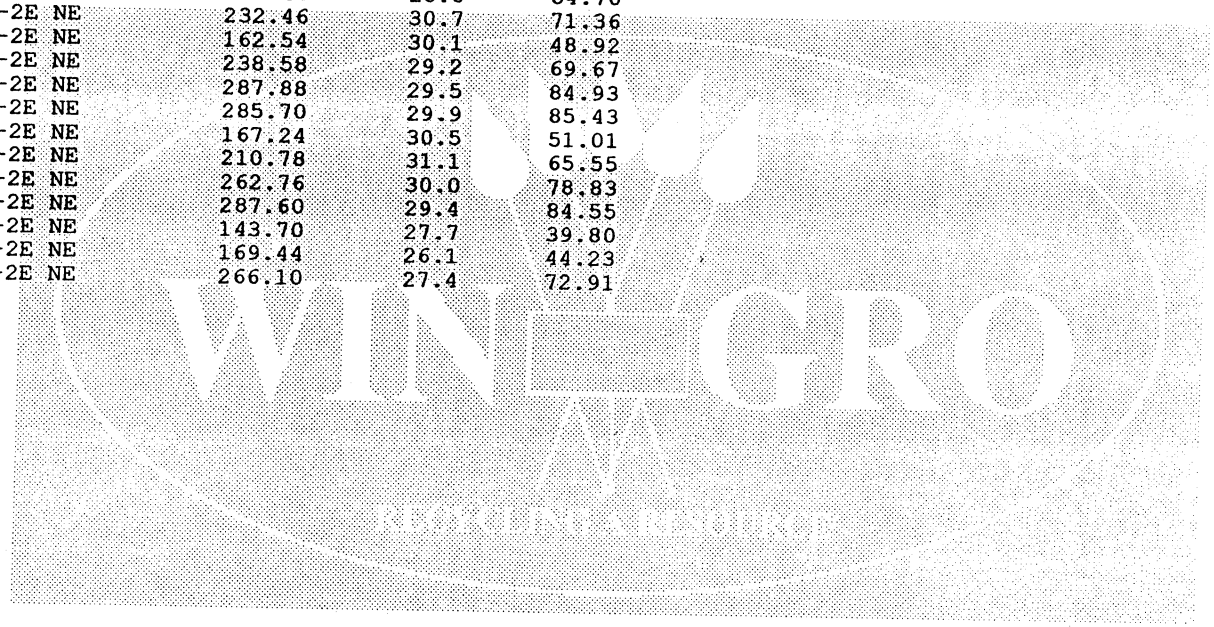
Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
02	NEWPCC	#2 0-0-	206.44	34.5	71.22
03	NEWPCC	#2 0-0-	255.60	34.6	88.44
04	NEWPCC	#2 0-0-	200.82	36.3	72.90
05	NEWPCC	#2 0-0-	152.00	34.7	52.74
08	NEWPCC	#43 24-14-2E NE	234.28	33.3	78.01
09	NEWPCC	#43 24-14-2E NE	141.00	32.9	46.39
09	Beds	#43 24-14-2E NE			23.67
10	NEWPCC	#43 24-14-2E NE	165.48	34.8	57.59
10	Beds	#43 24-14-2E NE			86.79
11	NEWPCC	#43 24-14-2E NE	188.72	31.7	59.83
11	Beds	#43 24-14-2E NE			39.50
12	NEWPCC	#43 24-14-2E NE	229.10	31.3	71.71
15	NEWPCC	#43 24-14-2E NE	284.34	30.0	85.30
16	NEWPCC	#43 24-14-2E NE	280.72	30.0	84.22
17	NEWPCC	#43 24-14-2E NE	211.58	28.7	60.72
18	NEWPCC	#43 24-14-2E NE	139.86	28.2	39.44
19	NEWPCC	#39 24-14-2E SE	164.88	30.6	50.45
22	NEWPCC	#39 24-14-2E SE	278.50	29.0	80.76
23	NEWPCC	#39 24-14-2E SE	303.80	27.5	83.55
24	NEWPCC	#39 24-14-2E SE	159.72	29.8	47.60
25	NEWPCC	#39 24-14-2E SE	141.26	27.7	39.13
26	NEWPCC	#39 24-14-2E SE	209.10	25.7	53.74
29	NEWPCC	#39 24-14-2E SE	281.56	27.6	77.71
30	NEWPCC	#39 24-14-2E SE	235.98	29.1	68.67
31	NEWPCC	#46 2-14-2E NE	47.30	29.1	13.76

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-	814.86						
NEWPCC	#39 24-14-2E SE	1774.80	501.61	43.5	77203.800		501.61	
NEWPCC	#43 24-14-2E NE	1875.08	583.21	46.0	86253.680		583.21	
Beds	#43 24-14-2E NE		149.96	38.0		5698.480	149.96	
NEWPCC	#46 2-14-2E NE	47.30	13.76	40.0	1892.000		13.76	
							---------	---------
							1248.54	

Monthly Hauling Report
For the Month 09/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#46 2-14-2E NE	112.60	28.3	31.87
02	NEWPCC	#46 2-14-2E NE	47.06	28.3	13.32
06	NEWPCC	#46 2-14-2E NE	143.42	31.8	45.61
07	NEWPCC	#46 2-14-2E NE	142.44	32.0	45.58
08	NEWPCC	#46 2-14-2E NE	139.72	30.0	41.92
09	NEWPCC	#46 2-14-2E NE	208.86	27.8	58.06
12	NEWPCC	#46 2-14-2E NE	280.52	29.4	82.47
13	NEWPCC	#46 2-14-2E NE	142.26	28.4	40.40
14	NEWPCC	#46 2-14-2E NE	302.48	28.0	84.70
15	NEWPCC	#46 2-14-2E NE	232.46	30.7	71.36
16	NEWPCC	#46 2-14-2E NE	162.54	30.1	48.92
19	NEWPCC	#46 2-14-2E NE	238.58	29.2	69.67
20	NEWPCC	#46 2-14-2E NE	287.88	29.5	84.93
21	NEWPCC	#46 2-14-2E NE	285.70	29.9	85.43
22	NEWPCC	#46 2-14-2E NE	167.24	30.5	51.01
23	NEWPCC	#46 2-14-2E NE	210.78	31.1	65.55
26	NEWPCC	#46 2-14-2E NE	262.76	30.0	78.83
27	NEWPCC	#46 2-14-2E NE	287.60	29.4	84.55
28	NEWPCC	#46 2-14-2E NE	143.70	27.7	39.80
29	NEWPCC	#46 2-14-2E NE	169.44	26.1	44.23
30	NEWPCC	#46 2-14-2E NE	266.10	27.4	72.91



Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#46 2-14-2E NE	4234.14	1241.11	40.0	169365.600		1241.11	
							1241.11	

Monthly Hauling Report
For the Month 10/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
03	NEWPCC	#46 2-14-2E NE	282.14	27.7	78.15
04	NEWPCC	#46 2-14-2E NE	257.92	32.5	83.83
05	NEWPCC	#46 2-14-2E NE	117.22	29.2	34.23
06	NEWPCC	#46 2-14-2E NE	232.42	29.9	69.49
07	NEWPCC	#46 2-14-2E NE	234.92	29.4	69.07
11	NEWPCC	#46 2-14-2E NE	236.54	31.1	73.56
12	NEWPCC	#46 2-14-2E NE	188.12	32.9	61.89
13	NEWPCC	#46 2-14-2E NE	165.44	31.4	51.95
14	NEWPCC	#46 2-14-2E NE	236.74	28.8	68.18
17	NEWPCC	#46 2-14-2E NE	328.36	29.4	96.54
18	NEWPCC	#46 2-14-2E NE	238.40	29.4	70.09
19	NEWPCC	#46 2-14-2E NE	162.36	28.5	46.27
20	NEWPCC	#46 2-14-2E NE	186.08	28.9	53.78
21	NEWPCC	#46 2-14-2E NE	140.86	28.7	40.43
24	NEWPCC	#46 2-14-2E NE	265.20	27.1	71.87
25	NEWPCC	#46 2-14-2E NE	140.64	27.2	38.25
26	NEWPCC	#46 2-14-2E NE	139.84	27.0	37.76
27	NEWPCC	#46 2-14-2E NE	141.09	27.0	38.09
28	NEWPCC	#46 2-14-2E NE	191.24	27.8	53.17
31	NEWPCC	#46 2-14-2E NE	237.52	30.3	71.97

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#46 2-14-2E NE	4123.05	1208.56	40.0	164922.000		1208.56	
							1208.56	

Monthly Hauling Report
For the Month 11/2005

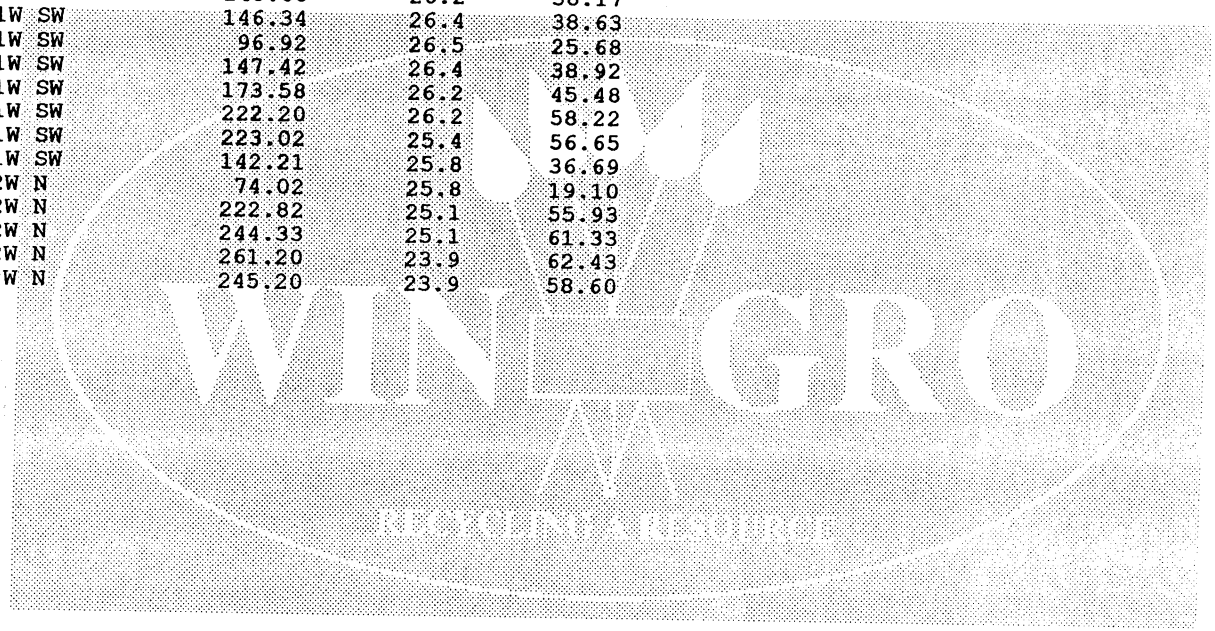
Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#46 2-14-2E NE	231.40	28.0	64.79
02	NEWPCC	#46 2-14-2E NE	282.42	29.0	81.90
03	NEWPCC	#46 2-14-2E NE	234.74	26.3	61.74
04	NEWPCC	#46 2-14-2E NE	186.24	27.8	51.78
07	NEWPCC	#46 2-14-2E NE	303.80	28.4	86.28
08	NEWPCC	#46 2-14-2E NE	275.92	29.2	80.57
10	NEWPCC	#45 6-7-1W SW	287.01	28.0	80.36
12	NEWPCC	#45 6-7-1W SW	193.56	28.1	54.39
14	NEWPCC	#45 6-7-1W SW	315.10	28.2	88.86
16	NEWPCC	#45 6-7-1W SW	192.16	27.2	52.27
17	NEWPCC	#45 6-7-1W SW	166.95	26.2	43.74
18	NEWPCC	#45 6-7-1W SW	164.12	28.7	47.10
21	NEWPCC	#45 6-7-1W SW	286.34	28.6	81.89
22	NEWPCC	#45 6-7-1W SW	289.22	28.0	80.98
23	NEWPCC	#45 6-7-1W SW	100.80	25.5	25.70
24	NEWPCC	#45 6-7-1W SW	145.90	28.8	42.02
25	NEWPCC	#45 6-7-1W SW	91.15	27.2	24.79
28	NEWPCC	#45 6-7-1W SW	197.20	27.2	53.64
29	NEWPCC	#45 6-7-1W SW	197.57	27.1	53.54
30	NEWPCC	#45 6-7-1W SW	221.84	25.4	56.35

Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#45 6-7-1W SW	2848.92	785.64	85.0	242158.200		785.64	
NEWPCC	#46 2-14-2E NE	1514.52	427.05	40.0	60580.800		427.05	
							1212.70	

Monthly Hauling Report
For the Month 12/2005

Day	Source	Destination	Wet Weight (T)	Solids (%)	Dry Weight (T)
01	NEWPCC	#45 6-7-1W SW	50.12	25.6	12.83
02	NEWPCC	#45 6-7-1W SW	143.78	29.6	42.56
05	NEWPCC	#45 6-7-1W SW	194.40	29.0	56.38
06	NEWPCC	#45 6-7-1W SW	213.06	27.2	57.95
07	NEWPCC	#45 6-7-1W SW	141.04	26.8	37.80
08	NEWPCC	#45 6-7-1W SW	123.06	27.5	33.84
09	NEWPCC	#45 6-7-1W SW	148.69	28.0	41.63
12	NEWPCC	#45 6-7-1W SW	217.78	27.3	59.45
13	NEWPCC	#45 6-7-1W SW	145.68	26.2	38.17
14	NEWPCC	#45 6-7-1W SW	146.34	26.4	38.63
15	NEWPCC	#45 6-7-1W SW	96.92	26.5	25.68
16	NEWPCC	#45 6-7-1W SW	147.42	26.4	38.92
19	NEWPCC	#45 6-7-1W SW	173.58	26.2	45.48
20	NEWPCC	#45 6-7-1W SW	222.20	26.2	58.22
21	NEWPCC	#45 6-7-1W SW	223.02	25.4	56.65
22	NEWPCC	#45 6-7-1W SW	142.21	25.8	36.69
23	NEWPCC	#47 1-7-2W N	74.02	25.8	19.10
27	NEWPCC	#47 1-7-2W N	222.82	25.1	55.93
28	NEWPCC	#47 1-7-2W N	244.33	25.1	61.33
29	NEWPCC	#47 1-7-2W N	261.20	23.9	62.43
30	NEWPCC	#47 1-7-2W N	245.20	23.9	58.60



Summary

Source	Destination	Wet Weight (T)	Dry Weight (T)	Distance (km)	Wet Rate (Tkm)	Dry Rate (Tkm)	Spread (T)	Incorporated (T)
NEWPCC	#45 6-7-1W SW	2529.30	680.88	85.0	214990.500		680.88	
NEWPCC	#47 1-7-2W N	1047.57	257.38	85.0	89043.450		257.38	
							938.26	

APPENDIX II

BIOSOLIDS & DITCHWATER

MONITORING RESULTS

FOR 2005

Table II (a)

2005 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	26-Dec-04	17.6	154	1,000	81.6	150	2,200	18,200	14,600	43,400	8.53	9.93	23.8
2	09-Jan-05	18.9	135	1,030	89.9	134	2,060	18,300	14,300	45,900	8.51	12.00	24.5
3	23-Jan-05	13.5	151	1,140	126.0	137	1,680	17,600	14,400	43,100	8.47	11.90	24.4
4	06-Feb-05	13.1	166	1,150	118.0	136	2,830	17,000	13,800	44,900	8.41	12.60	25.6
5	20-Feb-05	19.7	156	1,090	101.0	132	2,800	15,300	11,000	37,300	8.45	11.70	29.2
6	06-Mar-05	17.7	157	1,060	115.0	129	2,000	15,600	11,500	40,900	8.39	13.10	26.1
7	20-Mar-05	16.4	144	934	87.0	116	1,390	17,100	11,200	38,000	8.48	12.50	26.1
8	03-Apr-05	10.8	118	1,340	83.5	188	1,600	13,300	7,760	42,400	8.43	8.03	34.0
9	17-Apr-05	7.4	108	680	70.0	135	1,000	9,360	9,500	20,800	8.47	8.04	34.8
10	01-May-05	8.7	130	730	72.1	120	1,040	11,200	11,200	29,200	8.39	8.00	32.8
11	15-May-05	9.6	138	770	70.4	142	2,040	12,600	11,000	29,500	8.39	8.28	31.3
12	29-May-05	10.2	138	775	66.7	133	1,670	14,300	11,800	31,600	8.53	5.90	29.9
13	12-Jun-05	9.0	136	750	66.6	138	1,440	12,000	10,600	27,900	8.49	6.12	29.8
14	26-Jun-05	7.1	134	698	76.2	155	1,150	11,600	8,000	26,900	8.49	5.82	31.1
15	10-Jul-05	7.5	145	721	78.2	167	1,150	10,500	7,800	24,900	8.53	2.77	35.7
16	24-Jul-05	8.4	134	711	68.2	133	1,350	10,300	7,700	28,300	8.39	4.92	35.5
17	07-Aug-05	7.1	130	650	45.5	154	990	12,100	8,800	33,300	8.47	9.41	28.7
18	21-Aug-05	6.2	140	790	43.9	130	1,000	12,000	9,000	32,200	8.49	8.61	28.5
19	04-Sep-05	5.8	130	820	44.3	120	1,200	11,500	7,800	31,800	8.53	5.44	31.3
20	18-Sep-05	7.4	130	850	41.4	105	1,190	13,200	7,400	34,700	8.49	4.92	29.5
21	02-Oct-05	6.4	140	840	44.8	110	1,200	12,900	8,780	33,100	8.24	8.74	29.9
22	16-Oct-05	6.6	140	890	43.6	114	1,200	13,300	8,980	35,500	8.32	5.89	27.7
23	30-Oct-05	9.2	150	860	43.4	140	1,100	14,500	8,910	37,700	8.42	7.33	26.4
24	12-Nov-05	8.1	140	860	43.3	130	1,060	14,100	9,040	36,800	8.47	9.50	28.3
25	27-Nov-05	6.2	150	870	61.7	156	1,260	14,300	8,390	38,200	8.35	7.05	28.5
26	11-Dec-05	5.6	157	950	64.8	160	2,500	15,500	8,960	39,300	8.33	7.82	27.7
Average:		10.2	140	883	71.0	137	1,542	13,756	10,085	34,908	8.44	8.32	29.3
Maximum:		19.7	166	1,340	126.0	188	2,830	18,300	14,600	45,900	8.53	13.10	35.7
Minimum:		5.6	108	650	41.4	105	990	9,360	7,400	20,800	8.24	2.77	23.8

*** Indicates starting date for year 2005 biweekly composite samples**

Table II (b)

2005 Ditchwater Sampling Results
Field # 44, 45

Sampling point	Sample	Date	NH3+ mg/l N	NO3-NO2 mg/l N	TKN mg/l N	T.Phos mg/l P	Conductivity umhos/cm	Total Coliform MPNU/100ml	Fecal Coliform MPNU/100ml
Far Upsteam	L256951-1	April 4 ,05	0.55	1.58	2.7	0.816	214	21000	4
South side	L256893-1	April 5 ,05	0.49	1.96	3.2	0.920	254	>110000	4
at Hwy. #3	L257622-1	April 6 ,05	0.41	1.24	2.7	0.872	306	110000	<3
	L257634-1	April 7 ,05	0.21	0.84	1.8	0.608	261	24000	<3
	L257862-1	April 8 ,05	0.18	0.82	1.8	0.793	318	15000	4
	L258124-1	April 11 ,05	0.03	0.4	1.2	0.547	312	4300	<3
	No sample	April 12 ,05	*	*	*	*	*	*	*
	L258913-1	April 13 ,05	0.09	1.23	1.9	0.506	386	2900	23
	L259220-1	April 14 ,05	<0.01	0.77	1.7	0.484	423	4300	<3
	L259434-1	April 15 ,05	0.05	0.62	1.7	0.482	505	430	<3
Upstream South	L256951-2	April 4 ,05	0.55	1.57	2.5	0.695	198	46000	<3
side	L256893-2	April 5 ,05	0.52	1.86	3.5	0.985	245	110000	<3
	L257622-2	April 6 ,05	0.35	1.09	2.1	0.791	259	110000	<3
	L257634-2	April 7 ,05	0.05	0.16	1.3	0.594	285	7500	<3
	L257862-2	April 8 ,05	0.07	0.31	1.7	0.749	322	3800	<3
	L258124-2	April 11 ,05	<0.01	0.23	2.3	0.541	297	4300	4
	No sample	April 12 ,05	*	*	*	*	*	*	*
	L258913-2	April 13 ,05	0.25	1.46	2.2	0.577	383	3800	15
	L259220-2	April 14 ,05	0.01	0.35	1.5	0.542	440	2300	4
	L259434-2	April 15 ,05	0.02	0.33	1.7	0.508	470	430	<3
Flow Off or	L256951-3	April 4 ,05	1.29	1.55	3.6	0.709	193	110000	<3
Standing.	L256893-3	April 5 ,05	42.10	0.01	70.3	4.640	504	>110000	9
Field #44 from	L257622-3	April 6 ,05	22.70	0.02	44.8	3.660	485	>110000	7
South side	L257634-3	April 7 ,05	18.50	0.03	39.7	3.62	488	110000	230
	L257862-3	April 8 ,05	55.80	0.06	101.0	8.36	785	>110000	43
Almost all	L258124-3	April 11 ,05	7.44	0.03	123.0	17.0	1150	29000	15
of the flow	No sample	April 12 ,05	*	*	*	*	*	*	*
from the field	L258913-3	April 13 ,05	43.6	0.03	80.0	10.6	861	15000	1200
went south.	L259220-3	April 14 ,05	35.6	0.08	52.2	9.4	824	>110000	93
	L259434-3	April 15 ,05	2.82	0.05	6.6	5.0	744	75	23

Table II (b)

2005 Ditchwater Sampling Results
Field # 44, 45

Sampling point	Sample	Date	NH3+ mg/l N	NO3-NO2 mg/l N	TKN mg/l N	T.Phos mg/l P	Conductivity umhos/cm	Total Coliform MPNU/100ml	Fecal Coliform MPNU/100ml
Downstream	L256951-4	April 4 ,05	0.95	1.54	3.2	0.693	194	46000	<3
of Field #44	L256893-4	April 5 ,05	1.03	1.69	5.4	1.800	249	110000	4
(Upstream of	L257622-4	April 6 ,05	8.15	0.02	15.5	1.680	317	110000	<3
Field #45)	L257634-4	April 7 ,05	5.44	0.71	9.3	1.280	329	110000	<3
South side	L257862-4	April 8 ,05	2.05	0.45	4.6	0.940	332	110000	23
	L258124-4	April 11 ,05	0.87	0.18	2.1	0.712	306	4300	<3
	No sample	April 12 ,05	*	*	*	*	*	*	*
	L258913-4	April 13 ,05	1.86	1.62	4.9	1.030	410	9300	43
	L259220-4	April 14 ,05	1.39	0.53	4.2	0.891	440	110000	4
	L259434-4	April 15 ,05	1.37	0.21	3.7	0.914	476	23	<3
Far Upsteam	L256951-5	April 4 ,05	0.16	2.04	1.6	0.702	213	46000	9
North side	L256893-5	April 5 ,05	0.08	1.52	1.7	0.775	220	>110000	<3
	L257622-5	April 6 ,05	0.15	1.29	1.7	0.726	241	210	<3
	L257634-5	April 7 ,05	0.08	0.78	1.5	0.657	252	2100	<3
	L257862-5	April 8 ,05	0.03	0.26	1.2	0.590	268	4300	4
	L258124-5	April 11 ,05	<0.01	0.01	1.2	0.559	392	1500	<3
	No sample	April 12 ,05	*	*	*	*	*	*	*
	No sample	April 13 ,05	*	*	*	*	*	*	*
	No sample	April 14 ,05	*	*	*	*	*	*	*
	No sample	April 15 ,05	*	*	*	*	*	*	*
Upstream North	L256951-6	April 4 ,05	0.48	1.84	2.0	0.652	222	12000	<3
side	L256893-6	April 5 ,05	0.58	1.38	2.7	0.761	225	15000	<3
	L257622-6	April 6 ,05	0.59	1.21	2.5	0.728	240	4300	<3
	L257634-6	April 7 ,05	0.33	0.75	1.9	0.657	252	4300	<3
	L257862-6	April 8 ,05	0.21	0.28	1.6	0.623	280	9300	<3
	L258124-6	April 11 ,05	0.13	0.02	1.5	0.558	387	6400	4
	No sample	April 12 ,05	*	*	*	*	*	*	*
	No sample	April 13 ,05	*	*	*	*	*	*	*
	No sample	April 14 ,05	*	*	*	*	*	*	*
	No sample	April 15 ,05	*	*	*	*	*	*	

Table II (b)

2005 Ditchwater Sampling Results
Field # 44, 45

Sampling point	Sample	Date	NH3+ mg/l N	NO3-NO2 mg/l N	TKN mg/l N	T.Phos mg/l P	Conductivity umhos/cm	Total Coliform MPNU/100ml	Fecal Coliform MPNU/100ml
Flow Off field	L256951-7	April 4 ,05	1.24	1.3	3.1	0.907	205	1500	<3
North side	L256893-7	April 5 ,05	9.11	0.01	17.2	1.80	290	>110000	4
	L257622-7	April 6 ,05	0.58	1.19	2.6	0.731	243	2300	<3
Almost all	L257634-7	April 7 ,05	0.36	0.74	2.0	0.67	254	24000	<3
of the flow	L257862-7	April 8 ,05	9.92	0.02	23.0	3.2	524	>110000	43
from the field	L258124-7	April 11 ,05	8.42	0.10	16.2	3.41	659	46000	<3
went south.	No sample	April 12 ,05	*	*	*	*	*	*	*
	No sample	April 13 ,05	*	*	*	*	*	*	*
	No sample	April 14 ,05	*	*	*	*	*	*	*
	No sample	April 15 ,05	*	*	*	*	*	*	*
Downstream	L256951-8	April 4 ,05	0.84	1.32	2.5	0.759	201	23000	<3
North side	L256893-8	April 5 ,05	1.53	1.05	4.1	0.820	229	24000	4
	L257622-8	April 6 ,05	3.10	0.08	7.4	1.100	293	9300	4
	L257634-8	April 7 ,05	1.11	0.70	3.4	0.798	269	2,300	3
	L257862-8	April 8 ,05	0.42	0.28	2.1	0.682	288	4600	3
	L258124-8	April 11 ,05	0.17	0.02	1.6	0.563	394	9300	<3
	No sample	April 12 ,05	*	*	*	*	*	*	*
	No sample	April 13 ,05	*	*	*	*	*	*	*
	No sample	April 14 ,05	*	*	*	*	*	*	*
	No sample	April 15 ,05	*	*	*	*	*	*	*
Direct Grab	L256951-9	April 4 ,05	42.30	0.01	78.1	4.83	509	>110000	15
by pit at East	L256893-9	April 5 ,05	44.60	0.02	77.4	4.78	534	>110000	23
side	L257622-9	April 6 ,05	18.90	0.02	34.8	3.57	461	110000	<3
(standing water)	L257634-9	April 7 ,05	16.60	0.02	30.1	3.490	466	>110000	9
	L257862-9	April 8 ,05	12.20	0.15	27.8	3.710	568	>110000	93
	L258124-9	April 11 ,05	6.32	0.05	15.5	3.250	568	9300	<3
	No sample	April 12 ,05	*	*	*	*	*	*	*
	No sample	April 13 ,05	*	*	*	*	*	*	*
	No sample	April 14 ,05	*	*	*	*	*	*	*
	No sample	April 15 ,05	*	*	*	*	*	*	*

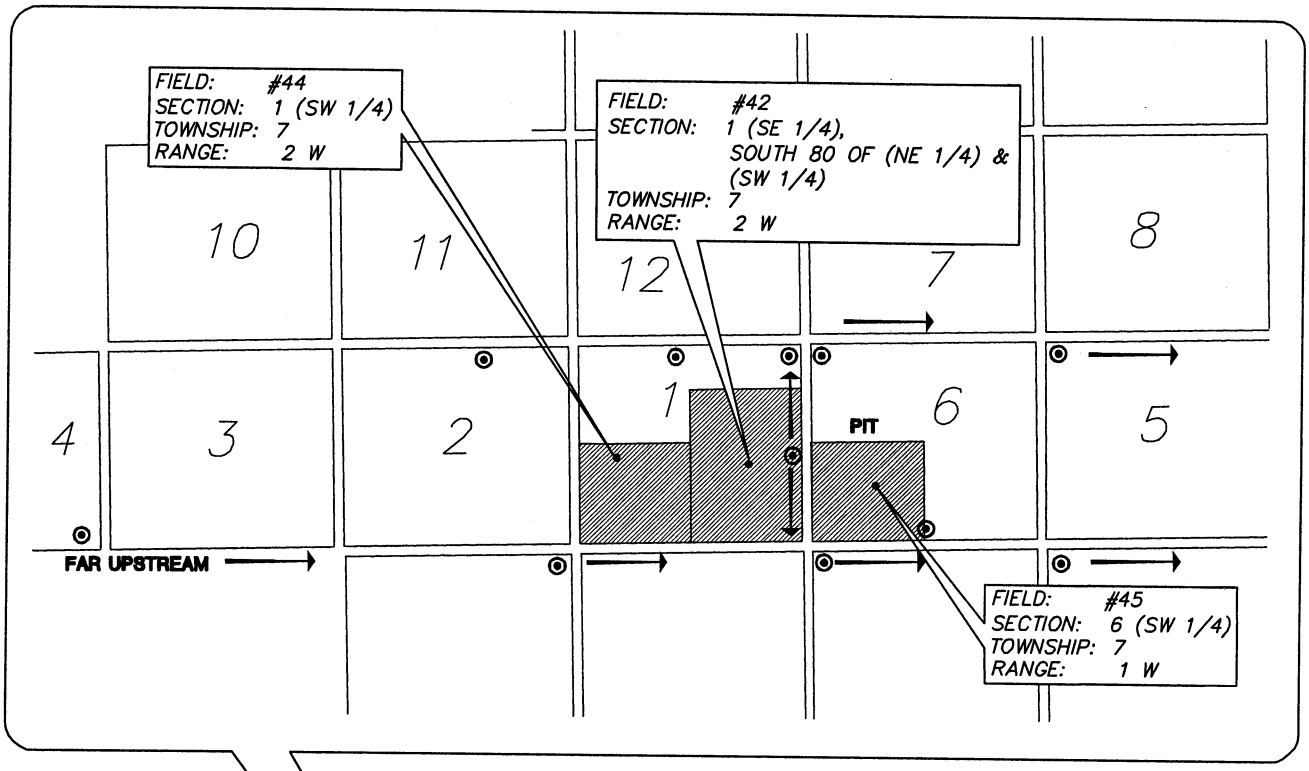
Table II (b)

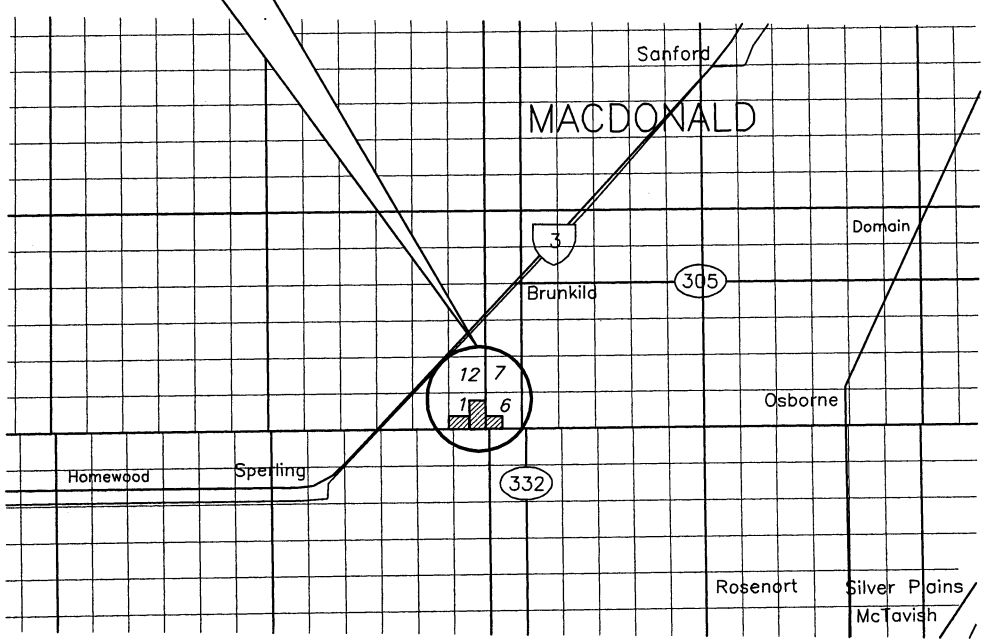
2005 Ditchwater Sampling Results
Field # 44, 45

Sampling point	Sample	Date	NH3+ mg/l N	NO3-NO2 mg/l N	TKN mg/l N	T.Phos mg/l P	Conductivity umhos/cm	Total Coliform MPNU/100ml	Fecal Coliform MPNU/100ml
Far Downsteam	L256951-10	April 4 ,05	0.44	1.45	1.8	0.685	205	15000	<3
North side	L256893-10	April 5 ,05	2.75	0.90	6.6	1.050	260	110000	9
	L257622-10	April 6 ,05	1.86	0.77	4.9	0.955	292	430	<3
	L257634-10	April 7 ,05	0.92	0.56	3.4	0.808	298	4300	<3
	L257862-10	April 8 ,05	0.40	0.25	2.1	0.667	307	46000	<3
	L258124-10	April 11 ,05	0.24	0.05	2.7	0.552	408	2300	3
	No sample	April 12 ,05	*	*	*	*	*	*	*
	No sample	April 13 ,05	*	*	*	*	*	*	*
	No sample	April 14 ,05	*	*	*	*	*	*	*
	No sample	April 15 ,05	*	*	*	*	*	*	*
Far Downstream	L256951-11	April 4 ,05	1.04	1.51	3.2	0.666	183	110000	4
South side	L256893-11	April 5 ,05	1.82	1.62	5.5	0.968	259	>110000	9
Downstream of	L257622-11	April 6 ,05	7.22	0.01	13.8	1.52	311	46000	<3
Fields #44 & #45	L257634-11	April 7 ,05	5.71	0.58	9.0	1.260	337	>110000	9
	L257862-11	April 8 ,05	1.73	0.23	4.8	0.973	358	21000	23
	L258124-11	April 11 ,05	0.73	0.17	2.5	0.669	321	9300	9
	No sample	April 12 ,05	*	*	*	*	*	*	*
	L258913-5	April 13 ,05	1.83	1.32	5.3	0.936	442	15000	1500
	L259220-5	April 14 ,05	1.51	0.45	4.3	0.856	467	1200	4
	L259434-5	April 15 ,05	0.84	0.22	3.0	0.738	476	23	<3
Flow off or	L256951-12	April 4 ,05	1.13	1.50	3.3	0.667	183	110000	4
standing.	L256893-12	April 5 ,05	2.84	1.52	7.2	1.02	263	>110000	<3
Field #45	L257622-12	April 6 ,05	5.61	0.02	10.3	1.160	297	12000	<3
near Hwy #332	L257634-12	April 7 ,05	4.91	0.01	10.4	1.36	334	110000	3
South side	L257862-12	April 8 ,05	1.53	0.01	6.4	1.18	474	21000	2300
	L258124-12	April 11 ,05	0.64	0.07	4.6	0.585	711	2300	<3
	No sample	April 12 ,05	*	*	*	*	*	*	*
	L258913-6	April 13 ,05	4.85	0.32	11.9	1.51	664	4300	2300
	L259220-6	April 14 ,05	2.30	0.07	9.1	0.963	698	110000	430
	L259434-6	April 15 ,05	0.51	0.06	6.1	0.576	708	93	7

2005 Ditchwater Sampling Locations

1 Far upstream South side @ Hwy # 3
2 Upstream South side
3 Flow off of / onto field South side
4 Downstream South side
5 Far Upstream North side
6 Upstream North side
7 Off field North side
8 Downstream North side
9 Direct Grab of Standing Water on Field
10 Far Downstream North Side
11 Far Downstream South Side
12 Off field South side @ Hwy # 332





N

LEGEND:

FLOW DIRECTION

SAMPLING LOCATION

Winnipeg

CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

MUNICIPALITY OF MACDONALD

DITCHWATER SAMPLING LOCATIONS

Figure 6.

R:\DRAWINGS\SEWER\MISC\BIOSOLIDS_APPLICATION_FIGURES\WINGRO_2006\DITCHWATER_MACD_FIELD42.dwg PLOTTED: 2005 12 01

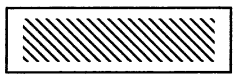
APPENDIX III

BACKGROUND SOIL ANALYTICAL RESULTS FOR

APPLIED FIELDS (2005)

TABLE III
2005 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)
#39	1.0	22.0	0.55	18.0	8.1	52.2	20.8	28.4	7.6	72.1	9.6	40.1
#43	14.4	7.0	0.24	18.3	7.5	42.8	19.2	28.6	7.9	77.1	7.1	19.9
#44	3.6	11.0	0.37	30.0	12.9	76.6	35.1	46.2	7.8	68.7	0.7	24.0
#45	9.0	9.0	1.01	35.0	11.9	71..2	35.8	43.8	7.9	69.8	0.6	39.3
#46	10.8	9.0	0.32	22.0	11.6	75.0	26.6	37.3	7.9	71.5	2.5	42.0
#47	17.1	0.5	0.36	30.0	11.2	9.4	46.0	57.4	7.8	76.2	3.2	42.3

Regulated Parameter: 

NOTES: (1) Soil sample depth is 0 to15 cm for all parameters except NO_3N where sample depth is 0 to 60 cm.
(2) Fields #39, #43, #44 and #46 were completed in 2005.
(3) Fields #45 and #47 are ongoing.

* Based on Soil Density = 1200 Dry kg/m3

** Sodium Bicarbonate Extractable Phosphorus

APPLICATION REPORT

Parcel Number: **44**

Location:
Sec/Twn/Rng: **1- 7-2W**
Quarter: **SW**
Municipality: **MACDONALD**

Date of Application: **28/01/1904**
Hectares: **62**
Distance (km): **85.0**
Bed Dist (km): **77.0**

Active: **Y**
Completed: **Y**
Suitable: **Y**

Stubble: **Y**
Suitable: **Y**
Reply: **Y**

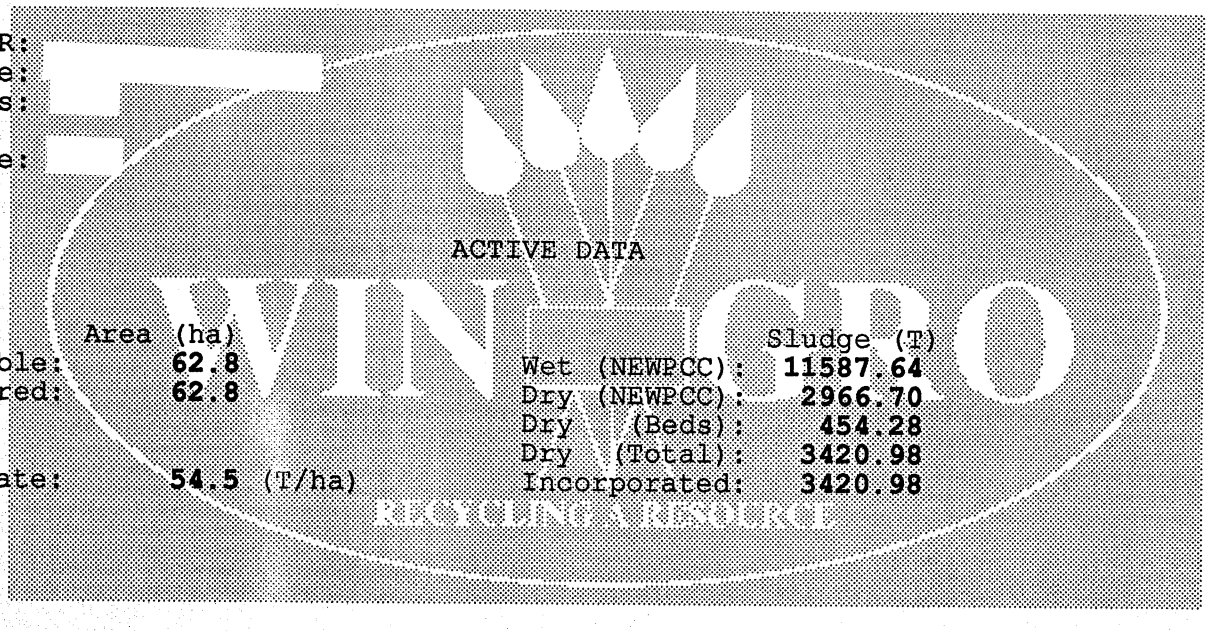
Memo: **SW 1/4**

OWNER:
Name:
Address:

Phone:

FARMER:
Name:
Address:

Phone:



ACTIVE DATA

Area (ha)		Sludge (T)	
Available:	**62.8**	Wet (NEWPCC):	**11587.64**
Covered:	**62.8**	Dry (NEWPCC):	**2966.70**
		Dry (Beds):	**454.28**
		Dry (Total):	**3420.98**
Rate:	**54.5** (T/ha)	Incorporated:	**3420.98**

Memo:

BACKGROUND SOIL TEST

Test Date **06/10/19**

			Cation Exchange	**24.0**	meq NH4/100g
Slope	**<3**	%	Copper	**30.0**	mg/kg
SCE Phosphorus	**11.0**	mg/kg	Zinc	**76.6**	mg/kg
Nitrate Nitrogen	**3.6**	kg/ha	Cadmium	**.37**	mg/kg
pH	**7.8**		Chromium	**46.2**	mg/kg
Moisture	**31.3**	%	Lead	**12.9**	mg/kg
Conductivity	**.7**	dS/m	Nickel	**35.1**	mg/kg

APPLICATION REPORT

Parcel Number: **43**

Location:		Date of Application:	**01/12/2003**
Sec/Twn/Rng:	**24-14-2E**	Hectares:	**61**
Quarter:	**NE**	Distance (km):	**46.0**
Municipality:	**ROCKWOOD**	Bed Dist (km):	**38.0**

Active:	**Y**	Stubble:	**N**
Completed:	**Y**	Suitable:	**Y**
Suitable:	**Y**	Reply:	**Y**

Memo:

OWNER:
Name:
Address:

Phone:

FARMER:
Name:
Address:

Phone:

ACTIVE DATA

Area (ha)		Sludge (T)	
Available:	**61.4**	Wet (NEWPCC):	**9929.38**
Covered:	**61.4**	Dry (NEWPCC):	**2968.20**
		Dry (Beds):	**335.48**
		Dry (Total):	**3303.68**
Rate:	**53.8** (T/ha)	Incorporated:	**3303.66**

Memo:

BACKGROUND SOIL TEST

Test Date	**20/11/19**				
			Cation Exchange	**19.9**	meq NH4/100g
Slope	**<3**	%	Copper	**18.3**	mg/kg
SCE Phosphorus	**7.0**	mg/kg	Zinc	**42.8**	mg/kg
Nitrate Nitrogen	**14.4**	kg/ha	Cadmium	**0.24**	mg/kg
pH	**7.9**		Chromium	**28.6**	mg/kg
Moisture	**22.9**	%	Lead	**7.5**	mg/kg
Conductivity	**7.1**	dS/m	Nickel	**19.2**	mg/kg

APPLICATION REPORT

Parcel Number: **39**

Location:		Date of Application:	**02/10/2002**
Sec/Twn/Rng:	**24-14-2E**	Hectares:	**32**
Quarter:	**SE**	Distance (km):	**43.5**
Municipality:	**ROCKWOOD**	Bed Dist (km):	**35.5**

Active:	**Y**	Stubble:	**N**
Completed:	**Y**	Suitable:	**Y**
Suitable:	**Y**	Reply:	**Y**

Memo:

OWNER:
Name:
Address:

Phone:

FARMER:
Name:
Address:

Phone:

ACTIVE DATA

Area (ha)		Sludge (T)	
Available:	**41.1**	Wet (NEWPCC):	**7338.34**
Covered:	**41.1**	Dry (NEWPCC):	**2141.02**
		Dry (Beds):	**77.08**
		Dry (Total):	**2218.10**
Rate:	**54.0** (T/ha)	Incorporated:	**2218.13**

Memo:

BACKGROUND SOIL TEST

Test Date **26/09/19**

Cation Exchange	**40.1**	meq NH4/100g			
Slope	**<3**	%	Copper	**18.0**	mg/kg
SCE Phosphorus	**22.0**	mg/kg	Zinc	**52.2**	mg/kg
Nitrate Nitrogen	**1.0**	kg/ha	Cadmium	**0.55**	mg/kg
pH	**7.6**		Chromium	**28.4**	mg/kg
Moisture	**27.9**	%	Lead	**8.1**	mg/kg
Conductivity	**9.6**	dS/m	Nickel	**20.8**	mg/kg

APPLICATION REPORT

Parcel Number: **46**

Location:
Sec/Twn/Rng: **2-14-2E**
Quarter: **NE**
Municipality: **ROCKWOOD**

Date of Application: **18/03/1918**
Hectares: **54**
Distance (km): **40.0**
Bed Dist (km): **32.0**

Active: **Y**
Completed: **Y**
Suitable: **Y**

Stubble: **N**
Suitable: **Y**
Reply: **Y**

Memo:

OWNER:
Name:
Address:

Phone:

FARMER:
Name:
Address:

Phone:

ACTIVE DATA

Area (ha)		Sludge (T)	
Available:	**53.9**	Wet (NEWPCC):	**9919.01**
Covered:	**53.9**	Dry (NEWPCC):	**2890.49**
		Dry (Beds):	
		Dry (Total):	**2890.49**
Rate:	**53.6** (T/ha)	Incorporated:	**2890.49**

Memo:

BACKGROUND SOIL TEST

Test Date **13/05/19**

			Cation Exchange	**41.0**	meq NH4/100g
Slope	**<3**	%	Copper	**22.0**	mg/kg
SCE Phosphorus	**9.0**	mg/kg	Zinc	**75.0**	mg/kg
Nitrate Nitrogen	**10.8**	kg/ha	Cadmium	**.32**	mg/kg
pH	**7.9**		Chromium	**37.3**	mg/kg
Moisture	**28.5**	%	Lead	**11.6**	mg/kg
Conductivity	**2.5**	dS/m	Nickel	**26.6**	mg/kg

APPLICATION REPORT

Parcel Number: **45**

Location:
Sec/Twn/Rng: **6- 7-1W**
Quarter: **SW**
Municipality: **MACDONALD**

Date of Application: **09/12/2004**
Hectares: **56**
Distance (km): **85.0**
Bed Dist (km): **73.0**

Active: **Y**
Completed: **N**
Suitable: **Y**

Stubble: **N**
Suitable: **Y**
Reply: **Y**

Memo:

OWNER:
Name:
Address:

Phone:

FARMER:
Name:
Address:

Phone:

ACTIVE DATA

Area (ha)		Sludge (T)	
Available:	**56.5**	Wet (NEWPCC):	**11222.86**
Covered:	**56.5**	Dry (NEWPCC):	**3137.29**
		Dry (Beds):	
		Dry (Total):	**3137.29**
Rate:	**55.5** (T/ha)	Incorporated:	**1670.77**

Memo:

BACKGROUND SOIL TEST

Test Date	**25/12/19**				
			Cation Exchange	**39.3**	meq NH4/100g
Slope	**<3**	%	Copper	**35.0**	mg/kg
SCE Phosphorus	**9.0**	mg/kg	Zinc	**71.2**	mg/kg
Nitrate Nitrogen	**9.0**	kg/ha	Cadmium	**1.01**	mg/kg
pH	**7.9**		Chromium	**43.8**	mg/kg
Moisture	**30.2**	%	Lead	**11.9**	mg/kg
Conductivity	**.6**	dS/m	Nickel	**35.8**	mg/kg

APPLICATION REPORT

Parcel Number: **47**

Location:		Date of Application:	**07/10/2005**
Sec/Twn/Rng:	**1- 7-2W**	Hectares:	**60**
Quarter:	**N**	Distance (km):	**85.0**
Municipality:	**MACDONALD**	Bed Dist (km):	**73.0**

Active:	**Y**	Stubble:	**Y**
Completed:	**N**	Suitable:	**Y**
Suitable:	**Y**	Reply:	**Y**

Memo: **North 80 acres of NE 1/4 and east 80 acres of NW 1/4.**

OWNER:
Name:
Address:

Phone:

FARMER:
Name:
Address:

Phone:

ACTIVE DATA

	Area (ha)		Sludge (T)
Available:	**62.8**	Wet (NEWPCC):	**1430.71**
Covered:	**6.0**	Dry (NEWPCC):	**317.94**
		Dry (Beds):	
		Dry (Total):	**317.94**
Rate:	**53.0** (T/ha)	Incorporated:	

Memo:

BACKGROUND SOIL TEST

Test Date	**28/09/19**				
			Cation Exchange	**42.3**	meq NH4/100g
Slope	**<3**	%	Copper	**30.0**	mg/kg
SCE Phosphorus	**.5**	mg/kg	Zinc	**9.4**	mg/kg
Nitrate Nitrogen	**17.1**	kg/ha	Cadmium	**.36**	mg/kg
pH	**7.8**		Chromium	**57.4**	mg/kg
Moisture	**23.8**	%	Lead	**11.2**	mg/kg
Conductivity	**3.2**	dS/m	Nickel	**46.0**	mg/kg

Appendix III Footnote:
Personal information in the Biosolids ‘Application Reports’ included in Appendix III has been excluded pursuant to the Manitoba Freedom of Information and Protection of Privacy Act (FIPPA).

APPENDIX IV

CORRESPONDENCE AND OTHER INFORMATION

Appendix IV Footnote:
Appendix IV 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).