



April 14, 2016

File No. 15-0321-001

Conservation and Water Stewardship
Environmental Approvals Branch
Box 80, 123 Main Street
Winnipeg, Manitoba
R3C 1A5

ATTENTION: Ms. Tracey Braun
Director

RE: St. Laurent Lagoon Assessment
Notice of Alteration - Sandy Bar Road Wastewater Treatment Facility

3rd Floor
865 Waverley Street
Winnipeg,
Manitoba
R3T 5P4
204.896.1209
fax: 204.896.0754
www.ksgroup.com

Dear Ms. Braun:

This Notice of Alteration letter and enclosed \$500 application fee are being submitted to Manitoba Conservation and Water Stewardship (MCWS) to request an amendment to the Clean Environment Commission Order 744 (CEC744) for the Manitoba Housing Authority Sandy Bar Road Wastewater Treatment Facility (commonly referred to as the St. Laurent Lagoon, See Figure 1 Site Plan). This Notice of Alteration is being submitted to request an amendment respecting the discharge practices and procedures in response to the MCWS letter, dated February 26, 2015. Details of how the discharge operations vary from the license requirements and associated effects are given in the following sections, to obtain formal authorization from MCWS and for inclusion in the Client File No. 318.15.

1.0 EFFLUENT DISCHARGE PRACTICE

The CEC744 requires Manitoba Housing Authority to:

- Ensure that effluent is discharged to Lake Manitoba by means of an enclosed pipe.

The February 26, 2015 letter from MCWS indicates that the current effluent discharge practice is to pump effluent over the berm from the Secondary Cell in to the surrounding marshy area encircled by the flood protection dike. This practice is inconsistent with the requirements of CEC744. It is understood that there is a 2 inch buried pipe extending from the Secondary Cell to Lake Manitoba to facilitate discharge; however, mechanical failure of this system resulted in the above noted deviation from licensed discharge practices many years ago.

As discussed with local Environment Officer Kurt Dorward, discharge from the Secondary Cell directly to Lake Manitoba is no longer considered to be the best practice or most practical option for the facility with many cabins along the shoreline. The current practice of discharging to the adjacent wetland has not raised concerns from the local residents even with a regular summer/warm weather discharge over the past several years.

Surface release of treated lagoon effluent is a commonly accepted practice, when in a suitable operational setting. The following factors have been considered when evaluating the application at this facility:

- Lagoon loading from the senior's residence, the local school, and eight homes operated by Manitoba Housing Authority;
- Lagoon capacity including use of the flood protection dike as a polishing cell for treated effluent; and
- Discharge schedule.

1.1 EXISTING LAGOON HYDRAULIC CAPACITY

It is understood that the Sandy Bar Road Wastewater Treatment Facility once serviced the local school, a senior's residence, and thirty-four houses along Buffalo Drive and Louis Riel Drive. According to a Sewage Lagoon Data Sheet, dated April 23, 1979, that was provided to KGS Group by Kurt Dorward for review, the design capacity of the facility considered a population of 197 residents and 512 persons at the school. The facility was designed for a hydraulic loading of 18,000 m³ per 196 days, with discharge twice per year. The Primary Cell and Secondary Cell were designed to have capacities of 19,000 m³ and 12,000 m³, respectively.

Manitoba Conservation and Water Stewardship indicated that a recent study dated October 20, 2014 showed both of the primary and secondary cells were operating at a depth of water level of 0.61m below the top of berm. The current capacities of the primary and the secondary cells are 20,000 m³ and 14,000 m³ respectively.

The Design Objectives For Wastewater Treatment Lagoons (September 2014) provided by Manitoba Conservation and Water Stewardship requires any wastewater treatment lagoon to maintain an one meter (1m) freeboard during operation. Therefore, the lagoon hydraulic capacity is re-evaluated as follows:

Primary Cell (Approximate Size: 60 m wide by 185 m long)

Total Depth of Cell	= 2.5 m
Freeboard	= 1.0 m
Invert of the discharge pipe	= 0.3 m
Operation Depth	= 1.2 m
Hydraulic Capacity	= 12,300 m ³
50% Hydraulic Capacity	= 6,100 m ³

Secondary Cell (Approximate Size: 85 m wide by 90 m long)

Total Depth of Cell	= 2.7 m
Freeboard	= 1.0 m
Invert of the discharge pipe	= 0.3 m
Operation Depth	= 1.4 m
Hydraulic Capacity	= 9,700 m ³

Manitoba Conservation and Water Stewardship requires that the primary cell storage capacity to be limited to 50% of the actual operating volume. The secondary cell storage capacity should be considered above the invert of the discharge pipe, usually 0.3 m off the cell floor. The new **maximum hydraulic capacity is calculated to be 15,800 m³** (6,100 m³ plus 9,700 m³)

1.2 HYDUALIC LOADING ESTIMATES

The loading on this facility has recently been reduced by the closure of many of the homes. Eight homes, each with an average of four residents, the senior's residence and the school will continue to use this facility for wastewater treatment. An estimated total daily flow is detailed below.

WASTEWATER CONTRIBUTION CATEGORIES	ESTIMATED NUMBER OF INDIVIDUALS	HYDRAULIC LOADING RATE (L/person/day)	ESTIMATED TOTAL DAILY FLOW (L/day)	ESTIMATED TOTAL YEARLY FLOW (m ³ /year)
Senior Residents	22	350	7,700	2,900
Students and Faculty	150	200	30,000 (210 days/year)	6,300
Manitoba Housing Authority Homes	8 houses, 32 persons	350	11,200	4,100
TOTAL			48,900	13,300

Based on the current use of the facility, the total yearly flow of 13,300 m³ is approximately 85% of the maximum hydraulic capacity of 15,800 m³. The maximum hydraulic retention time for the primary cell and secondary cell is approximately 14 months.

1.3 NEW POLISHING CELL

It is understood that the flood protection dyke is owned by Manitoba Housing Authority. KGS Group proposes that the area between the flood protection dike and the existing cells to be used as a polishing cell for treated effluent before surface release occurs. The perimeter lagoon flood protection dikes were constructed to required standards and show no apparent leakage. Current operation has been based on pumped discharge from secondary cell to polishing area and pumping of polishing area to wetland outside dike system.

The new polishing cell can be accomplished by installing a new interconnecting valve on the secondary cell of the lagoon and converting the culvert through the flood protection dike to a valve. The location of the new valves (as shown on Figure 1) will be documented and marked within the facility.

1.4 DISCHARGE SCHEDULE

The CEC744 requires Manitoba Housing Authority to:

- Ensure that no discharge of effluent takes place between the 1st day of November in any one year and the 15th day of May in the following year; and,
- Ensure that no discharge of effluent takes place between the 15th day of June and the 15th day of September in any one year.

1.5 DISCHARGE PATH

The sections above indicate that the Sandy Bar Road Wastewater Treatment Facility is in a position of reduced loading, while also being able to increase retention times of treated effluent with minor alterations to the facility. These conditions will combine to produce a more polished final effluent with 50% smaller volume that is suitable for surface discharge to the marshy land immediately west of the flood protection dike. This area is within the Manitoba Housing Authority right of way and has been the practice for the past decade or more. The proposed discharge location in relation to the Manitoba Housing right of way is shown on Figure 1. Manitoba Housing Authority requests that the use of the polishing cell and annual discharge to the marshy area be considered an acceptable treatment and discharge process for the effluent at the facility.

1.6 OPERATION PLAN

The lagoon will be operated in the following operation cycle:

Spring Discharge (May 15th to June 15th)

- Sample treated effluent in the secondary cell and compare to the effluent regulations.
 - Discharge when secondary cell effluent sample meets the effluent regulations between May 15th and June 15th.
- 1) Close the transfer valve between the primary and secondary cells
 - 2) Open the transfer valve between the secondary to polishing cells
 - 3) Open effluent discharge valve in polishing cell
 - 4) When discharge is completed, close the transfer valve between the secondary to the polishing cells as well as the discharge valve
 - 5) Open the transfer valve between the primary and secondary cells and equalize liquid level in each cell

Fall Discharge (September 15th to October 31st)

- Sample treated effluent in the secondary cell and compare to the effluent regulations near mid-September.
 - Discharge when secondary cell effluent sample meets the effluent regulations, between September 15th and October 31st.
- 1) Close the transfer valve between the primary and secondary cells
 - 2) Open the transfer valve between the secondary to polishing cells
 - 3) Open effluent discharge valve in polishing cell
 - 4) When discharge is completed, close the transfer valve between the secondary to the polishing cells as well as the discharge valve
 - 5) Open the transfer valve between the primary and secondary cells and equalize liquid level in each cell

2.0 LAGOON FACILITY IMPROVEMENTS

The MCWS letter dated February 26, 2015, identified specific areas for improvement at the Sandy Bar Road Wastewater Treatment Facility. In addition to correcting these conditions, Manitoba Housing Authority has identified additional areas for improvement. These are discussed in more detail below.

2.1 ACCESS ROAD

The facility access road runs from Buffalo Drive, between two Manitoba Housing Authority homes, over the flood protection dike, and up to the facility gate. The road passes through a low-lying area that is commonly wet, and often difficult to pass. Additionally, there is no turnaround point for vehicles other than the lagoon berms.

In consideration of the long-term use of the facility, Manitoba Housing Authority has proposed a relocation of the access road. Therefore, the existing road will not be repaired, but a new road will be constructed to suitable conditions. The proposed road alignment is shown on Figure 1.

2.2 FENCING

The facility is surrounded by a chain link fence with a single access gate to the east of the Primary Cell. The fence is intended to discourage trespassing and prevent wildlife from entering the facility. As identified in the February 26, 2015 letter from MCWS, sections of the fence are in poor condition and warrant repair. Manitoba Housing will complete these repairs, and also relocate the access gate to the location of the new access road.

2.3 INTERCONNECTING VALVES

The February 26, 2015 letter from MCWS indicated that the interconnecting valve between the Primary Cell and Secondary Cell needed to be checked for functionality. It has been confirmed that this valve is not currently operational and the other valve could not be located. Both of these valves will be replaced, and the locations will be documented and marked within the facility. A third valve will be adapted into the current culvert to allow discharge from the polishing cell to the marsh area.

2.4 DREDGING OF THE PRIMARY CELL (IF AND AS REQUIRED)

During the installation of the interconnecting valves, the level of water within the Primary and Secondary cells will be lowered. During this time, the sludge accumulation within the Primary Cell will be assessed. It is proposed that the sludge be dredged and evenly redistributed across the base of the Primary Cell to maintain a uniform lagoon bottom. Should the accumulation be so great that it interfered with the required capacity of the lagoon, the material will be removed for external disposal. If external disposal is required, the composition of the sludge will be evaluated and an appropriate disposal options (ie. landfill vs land application) will be selected in consultation with MCWS.

2.5 BERM CONDITION

The Golder Associates Ltd. report titled "Lagoon Assessment, St. Laurent, Manitoba" dated October 24, 2013 (reference number 12-1380-0086) documents the findings of an investigation intended to evaluate the apparent stability of the lagoon berms. The report indicated that the

berms were constructed of low permeability clay and silty clay. Although minor erosion and sloughing was observed, no significant stability issues were identified at the time.

However, from an operational standpoint, Manitoba Housing Authority has identified that the berm between the Primary and Secondary cells is both low and narrow. In order to preserve freeboard conditions and improve access for maintenance equipment, it has been proposed that this portion of the berm be improved upon during the overall facility upgrades.

The berm will be surveyed to determine the required surface elevation. This low area will be raised using local compacted clay at the same time the road improvements are completed.

3.0 CERTIFICATION OF OPERATOR

It is understood that operation of the Sandy Bar Road Wastewater Treatment Facility is to be completed by an operator certified through the MCWS Water & Wastewater Facility Operators Certification Program. Moving forward, a certified operator will be employed to complete monthly inspections of the facility, manage discharge events, and provide on-call services.

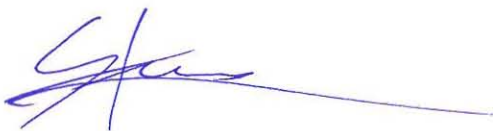
4.0 SCHEDULE FOR LAGOON IMPROVEMENTS

Manitoba Housing Authority intends to complete the above noted repairs and improvements within the 2016 calendar year. The planned schedule is to tender the work in April, and discharge from the Secondary Cell in May in order to facilitate the work that requires low water conditions within the lagoon.

5.0 CLOSURE

We trust the above information is adequate for an alteration notification and inclusion in the Client File. Should you have any questions or wish to discuss this letter further, please do not hesitate to contact the undersigned.

Prepared By:



Steven Cho, M.Sc., P.Eng.
Environmental Engineer

SC/RDS/mp

Approved By:



Rob Sinclair, M.Sc., P.Eng.
Manager, Environmental Services

Application for Wastewater Treatment Facility Classification

also available online at <http://www.manitoba.ca/certification>

Please print clearly or type and follow the instructions on the application form.

NOTE: If using Adobe Reader text can be inserted into form and tab between fields.

This application is pursuant to the Water and Wastewater Facility Operators Regulation issued under The Environment Act.

Name of Facility: Sandy Bar Road Wastewater Treatment Facility

Name of Facility Owner:
(Municipality/Commission/
Company/Individual/etc) Manitoba Housing

Civic Address of Facility: St. Laurent, Manitoba

Mailing Address of Owner: 101-215 Eaton Avenue, Selkirk, MB

Postal Code: R1A2H8 Telephone: (204) 785-5086

Contact Person: Susanne Yatkowski Position: Operations Manager

Cell or Pager: (204) 485-2765 Fax: (204) 785-5095 Email: susanne.yatkowski@gov.mb.ca

Is this a REAPPLICATION? Yes
 No

Please complete the following. The information provided will be used to classify the wastewater treatment facility under the Water and Wastewater Facility Operators Regulation. In some cases actual numbers or answers must be supplied, but in most cases it will only be necessary to check the appropriate criteria.

Forward the completed form to:

Director
Environmental Assessment &
Licensing Branch
Manitoba Conservation
160 – 123 Main Street
Winnipeg MB R3C 1A5

Please direct questions to:

Certification Program Coordinator
Phone: (204) 945-7065
Fax: (204) 945-5229

FOR MANITOBA CONSERVATION USE ONLY

Operation ID # _____

Stakeholder ID # _____

Approval ID # _____

EO/DWO

Application for Wastewater Treatment Facility Classification

SYSTEM (choose all that apply)			
1.	New or proposed Facility seeking classification	<input type="checkbox"/>	
	Proposed start of operations (month / year)		
	Existing Facility seeking classification (in operation prior to December 31, 2005)	<input checked="" type="checkbox"/>	
	Facility has been in operation since (approximate month/year) 04/23/1979		
2.	The facility WILL employ mechanical treatment processes	<input type="radio"/>	
	The facility WILL NOT employ mechanical treatment processes	<input checked="" type="radio"/>	

SIZE (refer to Supplemental Information for point designation) (2 point minimum to 20 point maximum)				
1.	Maximum population or part served, peak day	# 204		1-10
2.	Design flow average day (Circle volume option & units)	Estimated <input checked="" type="radio"/> or Actual <input type="radio"/> 49	<input checked="" type="radio"/> m ³ /day <input type="radio"/> gal/day	1-10
	OR Peak month's flow average day	Estimated <input type="radio"/> or Actual <input type="radio"/> _____	<input type="radio"/> m ³ /day <input type="radio"/> gal/day	

VARIATION IN RAW WASTE ¹ (choose all that apply) (0 point minimum to 6 point maximum)			
1.	Variations do not exceed those normally or typically expected	<input checked="" type="checkbox"/>	0
2.	Recurring deviations or excessive variations of 100-200% in strength	<input type="checkbox"/>	2
	Recurring deviations or excessive variations of 100-200% in flow	<input type="checkbox"/>	
	Recurring deviations or excessive variations of 100-200% in strength and flow	<input type="checkbox"/>	
3.	Recurring deviations or excessive variations of more than 200% in strength	<input type="checkbox"/>	4
	Recurring deviations or excessive variations of more than 200% in flow	<input type="checkbox"/>	
	Recurring deviations or excessive variations of more than 200% in strength and flow	<input type="checkbox"/>	
4.	Raw wastes subject to toxic waste discharges	<input type="checkbox"/>	6
5.	Septage or truck-hauled waste discharge is accepted at the facility.	<input type="checkbox"/>	0 - 4
	Estimated number of loads per day in peak haul times		

Application for Wastewater Treatment Facility Classification

PRELIMINARY TREATMENT (choose all that apply)			
1.	Facility pumping of main flow	<input type="checkbox"/>	3
2.	Screening or comminution	<input type="checkbox"/>	3
3.	Grit removal	<input type="checkbox"/>	3
4.	Equalization	<input type="checkbox"/>	1

PRIMARY TREATMENT (choose all that apply)			
1.	Clarifiers	<input type="checkbox"/>	5
2.	Anaerobic treatment with biogas flare	<input type="checkbox"/>	10
3.	Anaerobic treatment with biogas utilization facility	<input type="checkbox"/>	15

SECONDARY TREATMENT (choose all that apply)			
1.	Fixed-film reactor	<input type="checkbox"/>	10
2.	Activated sludge	<input type="checkbox"/>	15
3.	Stabilization ponds without aeration (ie: sewage lagoon)	<input checked="" type="checkbox"/>	5
4.	Stabilization ponds with aeration	<input type="checkbox"/>	8

TERTIARY TREATMENT (choose all that apply)			
1.	Polishing ponds for advanced waste treatment	<input type="checkbox"/>	2
2.	Chemical / physical advanced waste treatment without secondary treatment	<input type="checkbox"/>	15
3.	Chemical / physical advanced waste treatment following secondary treatment	<input type="checkbox"/>	10
4.	Biological or chemical / biological advanced waste treatment	<input type="checkbox"/>	12
5.	Nitrification by designed extended aeration only	<input type="checkbox"/>	5
6.	Ion exchange for advanced waste treatment	<input type="checkbox"/>	10
7.	Reverse osmosis, electrodialysis and other membrane filtration techniques	<input type="checkbox"/>	10
8.	Advanced waste treatment chemical recovery, carbon regeneration	<input type="checkbox"/>	4

Application for Wastewater Treatment Facility Classification

9.	Media filtration	<input type="checkbox"/>	5
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ADDITIONAL TREATMENT PROCESSES <i>(choose all that apply)</i>			
1.	Chemical addition: <i>(Please list chemicals used, 2 pts per chemical to max. of 6)</i>	<input type="checkbox"/>	0 - 6
2.	Dissolved air floatation (other than for sludge thickening)	<input type="checkbox"/>	8
3.	Intermittent sand filter	<input type="checkbox"/>	2
4.	Recirculating intermittent sand filter	<input type="checkbox"/>	3
5.	Microscreens	<input type="checkbox"/>	5
6.	Generation of oxygen	<input type="checkbox"/>	5

SOLIDS HANDLING <i>(choose all that apply)</i>			
1.	Storage (other than for stabilization)	<input type="checkbox"/>	2
2.	Stabilization by storage (including any storage afterwards)	<input type="checkbox"/>	4
3.	Gravity thickening	<input type="checkbox"/>	2
4.	Mechanical dewatering	<input type="checkbox"/>	8
5.	Anaerobic digestion of solids	<input type="checkbox"/>	10
6.	Utilization of digester gas for heating or cogeneration	<input type="checkbox"/>	5
7.	Aerobic digestion of solids	<input type="checkbox"/>	6
8.	Air-drying of sludge	<input type="checkbox"/>	2
9.	Solids reduction (including incineration and wet oxidation)	<input type="checkbox"/>	12
10.	Disposal in landfill	<input checked="" type="checkbox"/>	2
11.	Solids composting	<input type="checkbox"/>	10
12.	Land application of biosolids by contractor	<input type="checkbox"/>	2
13.	Land application of biosolids by facility personnel	<input type="checkbox"/>	10

Application for Wastewater Treatment Facility Classification

DISINFECTION (choose all that apply) (0 point minimum to 10 point maximum)			
1.	Chlorination	<input type="checkbox"/>	5
	Ultraviolet irradiation	<input type="checkbox"/>	
2.	Ozonization	<input type="checkbox"/>	10


EFFLUENT DISCHARGE (choose all that apply) (0 point minimum to 10 point maximum)			
1.	Discharge to surface water (ditch or lake or _____)	<input checked="" type="checkbox"/>	0
2.	Mechanical post-aeration	<input type="checkbox"/>	2
3.	Direct recycling and reuse	<input type="checkbox"/>	6
4.	Land treatment and surface or subsurface disposal	<input type="checkbox"/>	4

INSTRUMENTATION (choose one) (0 point minimum to 6 point maximum)			
1.	SCADA or similar instrumentation systems are used to provide:		
	• Data with no process operation	<input checked="" type="radio"/>	0
	• Data with limited process operation	<input type="radio"/>	2
	• Data with moderate process operation	<input type="radio"/>	4
	• Data with extensive or total process operation	<input type="radio"/>	6

LABORATORY CONTROL² (choose all that apply) (0 point minimum to 15 point maximum)			
1.	Bacteriological / Biological (0 point minimum to 5 point maximum)		
	• Lab work done outside the facility	<input checked="" type="checkbox"/>	0
	• Membrane filter procedures	<input type="checkbox"/>	3
	• Use of fermentation tubes or any dilution method of fecal coliform determination	<input type="checkbox"/>	5
2.	Chemical / Physical (0 point minimum to 10 point maximum)		
	• Lab work done outside the facility	<input checked="" type="checkbox"/>	0

Application for Wastewater Treatment Facility Classification

	<ul style="list-style-type: none"> • Push button or visual methods for simple tests such as pH or settleable solids <p><i>(List tests)</i></p>	<input type="checkbox"/>	3
	<ul style="list-style-type: none"> • Additional procedures such as DO, COD, BOD, gas analysis, titration, solids content or volatile content <p><i>(List tests)</i></p>	<input type="checkbox"/>	5
	<ul style="list-style-type: none"> • More advanced determinations such as specific constituents, nutrients, total oils or phenols <p><i>(List tests)</i></p>	<input type="checkbox"/>	7
	<ul style="list-style-type: none"> • Highly sophisticated instrumentation such as atomic absorption or gas chromatograph <p><i>(List tests)</i></p>	<input type="checkbox"/>	10

APPLICANT VERIFICATION	
I HEREBY DECLARE THAT ALL INFORMATION IN THIS APPLICATION IS TRUE.	
Name of Applicant ³ : (Print) Rob Sinclair, M.Sc., P.Eng.	
Title: Manager, Environmental Services, KGS Group	
Telephone: (204) 896-1209	Fax: (204) 896-0754
Email: rsinclair@kgsgroup.com	
Signature of Authorized Representative: 	Date: 03/15/2016

¹The key concepts are frequency or intensity of deviation, or excessive variation from normal or typical fluctuations. The deviations in strength, toxicity, ratio of infiltration to inflow, or shock loads.

² The key concept is to credit laboratory analyses done on-site by facility personnel under the direction of an operator-in-charge with points from 0-15.

³ Applicant must be an authorized representative of the owner/operating authority (i.e. manager, P. Eng., or overall responsible operator).

Print Application Form

Wastewater Treatment Form Supplemental Information

This is supplemental information for completing the Application for Wastewater Treatment Facility Classification Form only.

For exact definitions and text refer to Manitoba Regulation 77/2003, Water and Wastewater Facility Operators Regulation and amendment M.R. 162/2005, under The Environment Act (C.C.S.M. c E125).

A copy of the regulation is available by following the link for Manitoba Regulations at:
<http://www.gov.mb.ca/conservation/envapprovals/publs/index.html>

Facilities are classified as follows:

Small system class

A wastewater treatment facility that otherwise meets the criteria of a class 1 wastewater treatment facility shall be classified in the small system class if

- a) it treats wastewater from a population of no more than 500; and
- b) no mechanical treatment processes are employed at the facility.

Classes 1 to 4

Wastewater treatment facilities shall be classified in classes 1 to 4 in accordance with the following table, on the basis of the number of classification points assessed under the classification point system set out in the Water and Wastewater Facility Operators Regulation.

<u>Range of Classification Points</u>	<u>Classification</u>
0 to 30	Class 1
31 to 55	Class 2
56 to 75	Class 3
76 or more	Class 4

Size

Points for size: (2 point minimum to 20 point maximum)

Maximum population or part served, peak day (1 point minimum to 10 point maximum). Points are assigned at 1 point per 10,000 population or part.

Design flow average day or peak month's flow average day, whichever is larger (1 point minimum to 10 point maximum). Points are assigned at 1 point per 4.5 megalitres per day or part.

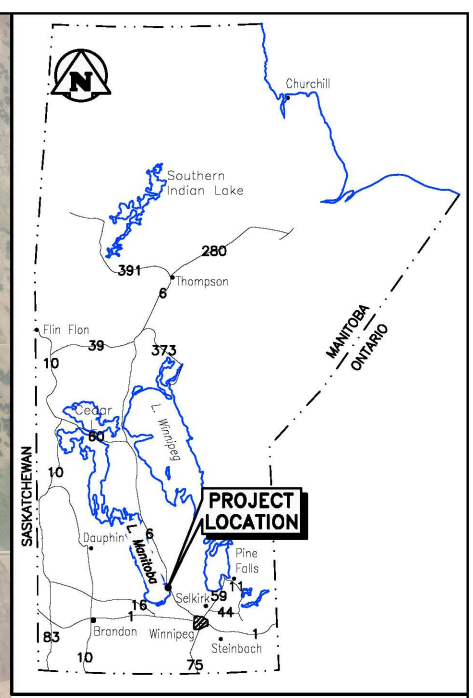
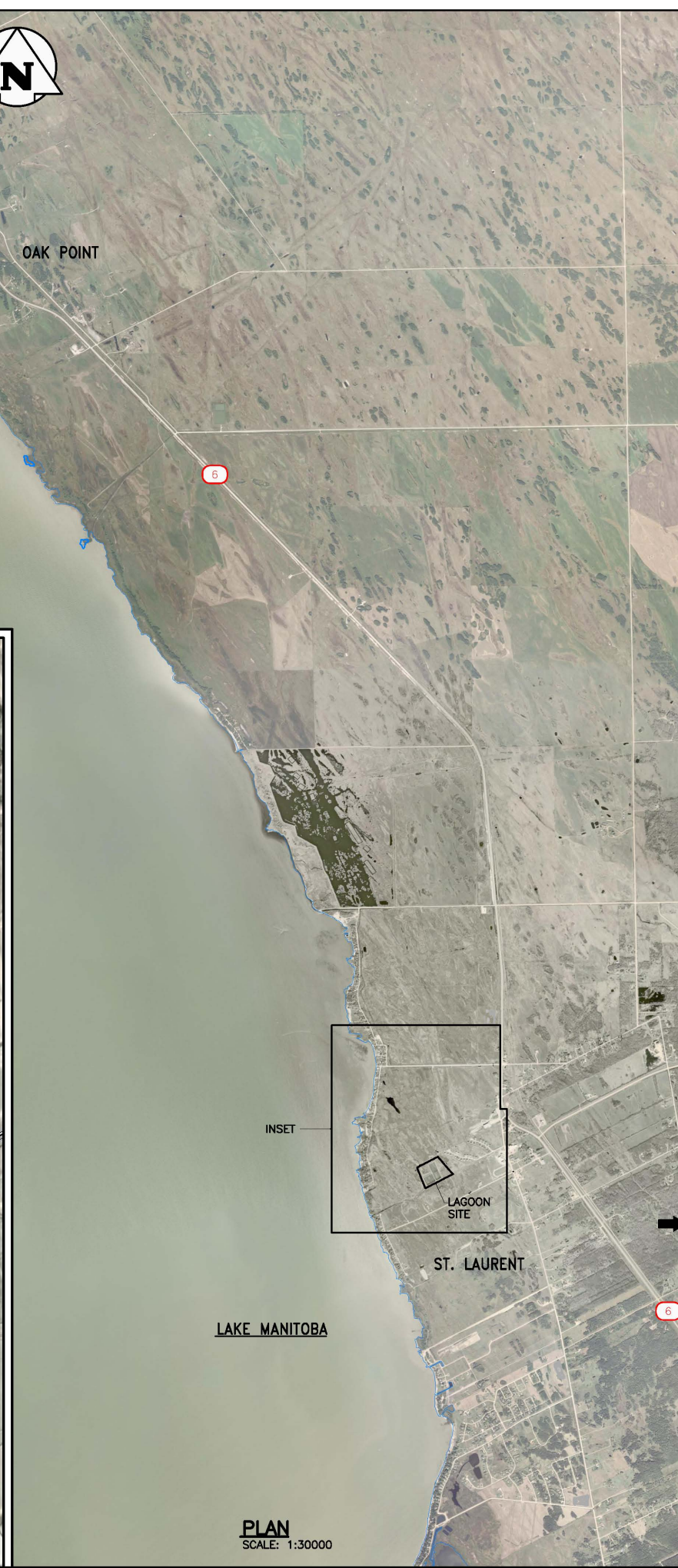
Authorized Representative

Signatures for the Applicant Verification section must be an individual recognized by the Owner of the facility as able to sign official documentation (i.e. P.Eng., Manager, CAO, etc).

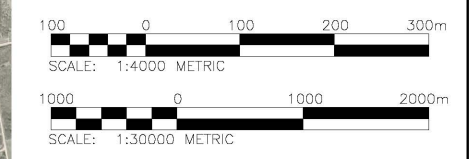
FIGURE 01

File Name: U:\FMS\15-0321-001\15-0321-001_G01.dwg - Tab: G01 Plotted By: rmeilleur 16/02/11 [Thu 10:07am]
 11'x17" PLOT SCALE: 1"=2'

11x17



- LEGEND:**
- V-1 REPLACEMENT VALVE
 - V-2 NEW VALVE
 - V-3 NEW VALVE IN PLACE OF CULVERT
 - MANITOBA HOUSING RIGHT OF WAY
 - DISCHARGE AREA
 - PROPOSED ALIGNMENT OF ACCESS ROAD



NO.	YY/MM/DD	DESCRIPTION	ISSUED BY	CHECK BY
B	16/02/12	RE-ISSUED WITH DRAFT REPORT	ASB	RDS
A	15/11/07	ISSUED WITH DRAFT REPORT	ASB	RDS

REVISIONS / ISSUE

KGS
GROUP
CONSULTING
ENGINEERS

LAGOON ASSESSMENT
ST. LAURENT, MANITOBA

SITE PLAN	
NOVEMBER 2015	FIGURE 01
REV: B	