6.1(a)

COUNTY OF WELLINGTON

PLANNING AND DEVELOPMENT DEPARTMENT
GARY A. COUSINS, M.C.I.P., DIRECTOR
T 519.837.2600
T 1.800.663.0750
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ADMINISTRATION CENTRE
74 WOOLWICH STREET
GUELPH ON N1H 3T9

November 26, 2013

Mrs. Karen Landry, CAO/Clerk
Township of Puslinch
R. R. 3 (Aberfoyle)
Guelph, Ontario N1H 6H9

Dear Mrs. Landry:

RE: ***Request for Comment on Correspondence from George Ochrym***

In response to your request for comments on the letter from George Ochrym, dated September 21, 2013 (attached) we thought it would be useful to provide the following background on the recently adopted Official Plan 5-Year Review Amendment (OPA 81) for Council's consideration.

During the OPA 81 process, Mr. Ochrym's planner (Mr. Chris Tyrell) requested that the County consider a site-specific policy to be included in OPA 81 which would recognize that the landowner intends to seek an adjustment of the Greenbelt Plan at the 10-year review (anticipated in 2015), and that the Subject Lands may provide for a logical expansion of the Morriston Urban Centre.

We considered the submission, and did not recommend addition of the requested special policy. This was based on our view that: it is not possible to expand Urban Centres on private services under current Greenbelt Plan policies; and, that this policy would prejudge the direction of growth without the benefit of a municipal comprehensive review, as required by Places to Grow and the County OP.

When the Greenbelt Plan 10-Year Review gets underway, we will monitor the process, participate in consultation, and provide updates to Council.

I trust that the foregoing is of assistance.

Yours truly,

Mark Paoli

Mark Paoli, M.Sc., MCIP, RPP
Manager of Policy Planning

cc: George Ochrym, Telfer Glen Developments Inc.

6.1(b)

September 21, 2013

Telfer Glen Developments Inc.
27 Poplar Hts. Dr
Toronto, ON, M9A 5A1

Your Worship Mayor Dennis Lever
Township of Puslinch
7404 Wellington Road 34
Guelph, ON N1H 6H9

Dear Mayor Lever:

Subject: **Telfer Glen Estates Phase 2, Morriston**
Telfer Glen Developments Inc.

Thank you for meeting with me on Monday, September 16th, 2013, to discuss the development of our remaining Telfer Glen Estates holdings in Morriston.

As discussed, it has always been our intention to proceed with Phase 2 of the Telfer Glen Estates subdivision once the Highway 6 by-pass alignment was established by the Ministry of Transportation (MTO). It was our understanding with the Township that Phase 2 of the development would be considered once the MTO alignment was established. We also note that the revised cul-de-sac terminus of Telfer Glen Street (as built) and "Proposed Future Expansion" area on a July 1988 Draft Plan reference the future Phase 2 development.

The Highway 6 realignment has now been established by MTO, and was registered in the County's Land Registry Office in 2010. In doing so, MTO has delineated the precise areas available for the Phase 2 subdivision. We note that this alignment bisects the western portion of our property. Telfer Glen Developments Inc. seeks to pursue Phase 2 of the Telfer Glen development at this time.

Our immediate next step is to engage with the Province through the 2015 Greenbelt Plan 10-year review, as much of the remaining Telfer Glen lands are now included in the Greenbelt Area. In our understanding of the Greenbelt Plan policies, removal of the Phase 2 lands from the Protected Countryside will only be considered in the context of a settlement expansion of a local municipality. In this case, we are seeking the logical expansion of Morriston to include the Telfer Glen Phase 2 lands. We respectfully request an audience with Council in the near future, and will ultimately seek a resolution from Council supporting this.

Please contact me with any questions. You can reach me at my office at (416) 236-2426 ext. 206, or by e-mail at gochrym@consultec.ca.

Yours sincerely,

George Ochrym

6.2(a)

Gamsby and Mannerow
ENGINEERS

CLERK'S DEPARTMENT	
TO A.P. S.D. No comments.	
Copy	
Please Handle	
For Your Information	
Council Agenda	Nov 6/13 / Oct 4/2013
File	

RECEIVED
SEP 10 2013
Township of Puslinch

September 4, 2013
Our File: 199-024

Township of Puslinch
RR3, 7404 Wellington Road 34
Guelph, ON N1H 6H9

Attention: Ms. Karen Landry
CAO/Clerk

Re: Mini Lakes Wastewater Treatment Plant Effluent Monitoring Report, 2nd Quarter (2013)

Dear Ms. Landry:

We have reviewed the "Mini Lakes Mobile Home Community Quarterly Monitoring Program – 2nd Quarter 2013" report, as submitted by Stantec Consulting Limited on July 30, 2013. We are pleased to provide our comments for your consideration.

The following table summarizes the average effluent quality for the second quarter (Q2) (column 2), the year to date (YTD) average (column 3), the 12-month rolling average (column 4), the previous YTD average (2012) (column 5) and the MOE Certificate of Approval (C of A) compliance limits (column 6).

1	2	3	4	5	6
Parameters (mg/L)	**Q2 Avg.,** (Apr. 1 to Jun. 30, 2013)	**YTD Avg.,** (Jan. 1 to Dec. 31, 2013)	**Twelve-Month Rolling Avg.,** (Jul. 1, 2012 to Jun. 30, 2013)[a]	**Previous YTD Avg.** (Jan. 1 to Dec. 31, 2012)	**Compliance Limit**
$CBOD_5$[b]	11.7	10.2	11.2	11.5	20.0
TSS[c]	10.0	13.7	16.3	15.0	20.0
TP[d]	0.36	0.46	0.43	0.43	1.0
NO_3[e]	**7.0**	**8.0**	4.6	4.7	5.0

a. Condition 3.1 of the MOE C of A, average is defined as "any twelve (12) consecutive calendar months"
b. $CBOD_5$ = 5 day Carbonaceous Biological Oxygen Demand
c. TSS = Total Suspended Solids
d. TP = Total Phosphorous
e. NO_3 = Nitrate

The MOE C of A requires that plant effluent be sampled and analyzed on a monthly basis for each of the parameters defined above. Plant effluent was sampled monthly for all parameters during this quarter.

Effluent $CBOD_5$

The average $CBOD_5$ effluent concentration for this quarter was 11.7 mg/L. This is below the C of A compliance limit of 20.0 mg/L for this parameter. Effluent $CBOD_5$ concentrations were below the compliance limit on all three sampling occasions during this quarter. The twelve month rolling average for this parameter is in compliance at 11.2 mg/L, demonstrating that the plant is performing well with respect to $CBOD_5$.

Effluent TSS

The average TSS effluent concentration for this quarter was 10.0 mg/L. This is below the C of A compliance limit of 20.0 mg/L for this parameter. Effluent TSS concentrations were below the compliance limit on all three sampling occasions this quarter. The twelve month rolling average for this parameter remains below the compliance limit at 16.3 mg/L, demonstrating that the plant is performing well with respect to TSS.

Effluent TP

The average TP effluent concentration for this quarter was 0.36 mg/L. This is below the C of A compliance limit of 1.0 mg/L for this parameter. Effluent TP concentrations were below the compliance limit on all three sampling occasions this quarter. The twelve month rolling average for this parameter is in compliance at 0.43 mg/L, demonstrating that the plant is performing well with respect to TP.

Effluent NO_3

The average effluent NO_3 concentration for this quarter was 7.0 mg/L which is above the C of A compliance limit of 5.0 mg/L for this parameter. Effluent NO_3 concentrations were above the compliance limit on all three sampling occasions this quarter; however the twelve month rolling average is 4.6 mg/L, which is below the compliance limit. Historically it has proved difficult to achieve compliance with the C of A nitrate limit during the colder winter months, as reduced water temperature reduces the ability of the system to denitrify. Spring 2013 was cooler than usual, and therefore nitrate levels did not recover as expected. Influent $CBOD_5$ concentrations were low for the quarter and dissolved oxygen concentrations high, which can also contribute to lack of denitrification.

The long term strategy for improving plant performance is to provide better sludge management capabilities by partitioning the existing primary clarifier into two chambers, one to be used for primary clarification and sludge storage and the other for effluent polishing. It is anticipated that this will resolve issues with sludge carryover and improve sludge and effluent recirculation abilities in order to optimize nitrogen removal.

On December 6, 2012 Stantec applied on behalf of Mini Lakes for an amendment to the Environmental Compliance Approval (ECA) for the proposed sludge management improvements. Approval and construction is expected no earlier than the fall due to delays with the ECA process. The application for amendment also includes a proposal to re-rate the plant based on the current Draft Plan of Subdivision and revise the nitrate limit upwards to 8.0 mg/L.

Average Sewage Flows

The average daily sewage flow rate to the plant ranged between 100.2 m^3/d and 105.7 m^3/d during this quarter. This is well below the plant's design capacity of 216 m^3/d. The estimated number of occupied homes ranged between 230 and 250 this quarter, which represents up to 86% of units in the current Draft Plan of Subdivision application.

The estimated average daily flow per home ranged between 401 L/d and 456 L/d, below the design average daily flow per home of 540 L/d.

We trust this is sufficient for your requirements. If you have any questions please call.

Yours truly,

GAMSBY AND MANNEROW LIMITED
Per:

Amanda Pepping, P.Eng.

AP/ar

cc: Ms. Dianne Paron, Mini Lakes Residents Association
Ms. Lynnette Armour, Ministry of the Environment – Guelph District Office
Mr. Stan Denhoed, Harden Environmental Services Ltd.
Mr. Miles McCormick, Stantec Consulting Ltd.

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Gamsby and Mannerow
ENGINEERS

(6.2(b)

Stantec Consulting Ltd.
49 Frederick Street
Kitchener ON N2H 6M7
Tel: (519) 579-4410

Stantec

July 30, 2013
File: 1611 07544/31

Township of Puslinch
R.R. #3
County Road 34 Aberfoyle
Guelph ON N1H 6H9

Attention: **Ms. Karen Landry, CAO/Clerk**

Dear Ms. Landry:

Reference: **Mini Lakes Mobile Home Community**
Quarterly Monitoring Program – 2nd Quarter 2013

Please find enclosed the wastewater treatment plant effluent results for Mini Lakes Mobile Home Community, provided in Table 1 (attached). These results are provided in accordance with the Operation and Maintenance Agreement between the Mini Lakes Residents Association and The Township of Puslinch, and the Certificate of Approval (C of A) for the sewage system. This letter represents the second quarter reporting for 2013.

As shown on Table 1 (attached), plant effluent has been sampled and analyzed on three occasions for this quarter.

The average carbonaceous biochemical oxygen demand ($CBOD_5$) concentration for the quarter is 11.7 mg/L, which is well below the compliance limit of 20 mg/L. $CBOD_5$ values were below the compliance limit on all three sampling occasions this quarter. The 12-month rolling average for $CBOD_5$ is 11.2 mg/L. Overall, the plant is deemed to be performing very well with respect to $CBOD_5$.

The average TSS concentration for the quarter is 10.0 mg/L, which is below the compliance limit of 20 mg/L. TSS values were below the compliance limit on all three sampling occasions this quarter. The 12-month rolling average for TSS is 14.0 mg/L. Overall, the plant is deemed to be performing very well with respect to TSS.

The average total phosphorus (TP) concentration for the quarter is 0.4 mg/L, which is well below the compliance limit of 1.0 mg/L. TP values were below the compliance limit on all three sampling occasions this quarter. The 12-month rolling average for TP is 0.4 mg/L. Overall, the plant is deemed to be performing very well with respect to TP.

The average nitrate concentration for the quarter is 7.0 mg/L, which is above the compliance limit of 5.0 mg/L. Nitrate values were above the compliance limit on all three sampling occasions this quarter. The 12-month rolling average for nitrate is 4.6 mg/L, which is below the compliance limit. As water temperature greatly reduces the ability of the system to denitrify, achieving compliance with the C of A for nitrate is difficult in the winter months, and has not rebounded this spring due to cooler than normal temperature. The lack of denitrification could also be related to high dissolved oxygen concentrations in the anoxic zone and low influent $CBOD_5$ concentrations (average 40 mg/L for the quarter).

Reference: Mini Lakes Mobile Home Community
Quarterly Monitoring Program – 2nd Quarter 2013

Since it has been shown that consistent denitrification is difficult to achieve, operations staff need to continue close monitoring and maintenance of the denitrification process. General measures required to maintain denitrification and phosphorus removal include, but are not limited to:

- Emptying and cleaning of the denitrification chambers, including addition of new media in areas previous left empty. Effluent results have improved in 2013 compared to the same quarter in 2012.
- Recording of sludge depths on a weekly or more frequent basis, and prompt sludge removal (as necessary) in all clarifiers and the effluent pump chamber.
- Regular denitrification media maintenance cleanings and removal of floatable material from the denitrification chambers.
- Use of the RBC feed-forward valves to the maximum extent possible to improve soluble carbon availability and lower dissolved oxygen in the denitrification zone.
- Daily inspections and regular cleaning of all clarifier weirs.
- Balancing of chemical dosing flows; conceptual plans have been prepared and reviewed by AWC for new chemical dosing facilities in accordance with the existing C of A.

The recommended long term plan is to provide better sludge management by partitioning the existing primary clarifier into two chambers, one for primary clarification and sludge storage, and the second for primary effluent polishing. This will resolve issues with sludge carryover and washout, and allow much greater flexibility in recirculating sludge and effluent in order to optimize nitrogen removal. Current issues with sludge carryover are related to the buildup of sludge in the primary clarifier and washout during high flow events. Additionally, operations staff have indicated that the return sludge is deposited at the discharge end, contributing to excessive buildup prior to the rotating biological contactor trains, and thus there is a higher potential for carryover. There is also no weir/baffle assembly in this clarifier to prevent sludge from entering the clarifier overflow. The proposed upgrades are as follows:

- Primary clarifier upgrades including:
    - a partition wall separating the chamber into two compartments, an inlet and sludge storage compartment having a working volume of 73 m^3 and a primary effluent compartment having a working volume of 23 m^3.
    - an inlet baffle plate.
    - an outlet weir box and baffle plate.
    - extension of all sludge recirculation piping to inlet chamber.
- Denitrification inlet modifications to allow crossover between trains for redundancy and option to run on one RBC train and two tertiary trains.
- One new effluent pump and piping for effluent recirculation to primary clarifier inlet.
- New chemical building as previously approved.

Implementation of these upgrades will be difficult and complex due to the need to bypass the clarifier during installation using an offline tank; however, these upgrades would improve the operational efficiency of the plant, resistance to upsets (e.g., denitrification media plugging), and provide savings related to reduced sludge haulage. These upgrades will require an amendment to the current approval. Stantec has applied on behalf of Mini Lakes for an amended Environmental Compliance Approval (ECA) as of December 6, 2012 and we expect approval and construction to begin no earlier than this fall due to delays in the ECA. With the

approval amendment, we also propose to re-rate the wastewater treatment plant based on the current Draft Plan of Subdivision and subsequently revise the nitrate limit upwards to 8.0 mg/L based on lower long term projected nitrate loadings than originally designed.

It must be noted that these plans are ongoing and subject to approval and financial resources, though Mini Lakes already has approval and funding in place for the chemical building upgrades. MLRA is committed to resolving this situation, and additional monitoring of initial repairs to the denitrification media system will continue in the near term.

Results for dissolved oxygen (DO) this quarter are well above optimal values at an average of 7.5 mg/L, where the objective is to be below 2 mg/L to ensure reliable denitrification. The effluent DO concentrations are higher than in the previous quarter which showed DO effluent concentrations averaging 7.3 mg/L, and much higher than last fall when denitrification was working and DO was as low as 3 mg/L. This is primarily related to colder water temperatures which increase the DO saturation concentration. An assessment of historic nitrate data appears to show more of a correlation between seasonal temperature variation and nitrate reduction than DO concentration; however, nitrate performance appears to improve with lower DO levels.

The remaining parameters shown on Table 1 have been sampled in accordance with the C of A; however, they do not have compliance limits. The results for these additional parameters are deemed to be acceptable and are reasonable for this type of wastewater treatment plant. Results for effluent *E. coli* this quarter show an average of 28,333 CFU/100 mL. Results for pH this quarter are consistent with expected values at an average of 7.4.

With respect to wastewater flows this quarter, the average flow per unit estimate is approximately 432 L/unit/day. This is higher than the average per unit flow over the past three (3) years of approximately 400 L/unit/day; however, this is expected during the spring quarter when infiltration and inflow is highest. The design average is 540 L/unit/day and the maximum daily design flow is 800 L/unit/day. Estimated per unit flows have not exceeded the daily design basis this quarter. The average day flow was only 48% of the design average day flow of 216 m^3/d this quarter, and the maximum day flow never exceeded the wastewater treatment plant maximum day design flow of 320 m^3/d. Based on these trends and the fact that the development as a whole is approximately 65% built out based on original design (and 90% based on current Draft Plan of Subdivision application for 292 total units), it is our opinion that infiltration and inflow are not an issue at this time. The average daily flows for each month, and the corresponding estimated number of occupied homes, is given below.

Table 2: Sewage Flow Volumes

Month (2013)	Average Daily Flow (L/d)	Maximum Daily Flow (L/d)	Estimated Number of Occupied Homes	Estimated Flow per Unit (L/d)
April	104,886	129,630	230	456
May	105,660	127,540	240	440
June	100,195	141,260	250	401

Reference: Mini Lakes Mobile Home Community
Quarterly Monitoring Program – 2nd Quarter 2013

In addition to the monitoring requirements for the wastewater treatment plant, surface water and groundwater have been monitored for the development. Please find attached the letter report from CH2M Hill Canada Limited outlining the subsurface and groundwater monitoring results.

We trust this meets with your requirements. Should you have any questions, please contact the undersigned.

Sincerely,

STANTEC CONSULTING LTD.

Miles MacCormack, P. Eng.
Project Manager, Water
Tel: (519) 585-7499
Fax: (519) 579-8806
miles.maccormack@stantec.com

Attachment

c. Ms. Dianne Paron, Mini Lakes Residents Associated (letter only)
Ms. Lynn Zettle, Region Business Banking Centre (letter only)
Mr. Ed McGurk, CH2M Hill Canada Limited (letter only)
Ms. Amanda Pepping, Gamsby and Mannerow Limited (attachment)
Ms. Lynnette Armour, Ministry of the Environment - Guelph District Office (attachment)

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Table 1

MINI LAKES MOBILE HOME COMMUNITY WWTP - Effluent Sampling Results

	Effluent Sampling Parameters										
	C-BOD$_5$	TSS	TP	NH_3	NO_3	NO_2	TKN	TN(calc)	DO	E. coli	pH
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	/100mL	
compliance limit	**20**	**20**	**1.00**	**na**	**5.00**	**na**	**na**	**na**	**na**	**na**	**na**
Sampling Date											
4-Jul-12	13	41	0.77	6.40			8.08		3.82	20,000	7.51
10-Jul-12					0.45	0.89					
11-Jul-12					3.90	2.00					
27-Jul-12					1.40	1.10					
10-Aug-12	16	29	0.32	5.80			8.2		1.13	110,000	7.41
20-Aug-12					0.10	0.02					
21-Aug-12					3.70	0.32					
22-Aug-12					3.30	0.38					
23-Aug-12					1.80	0.86					
30-Aug-12		10			5.20	0.45					
7-Sep-12	3	11	0.31	3.80	4.40	0.18	5.5	10.1	7.72	200,000	7.33
26-Oct-12	20	<10	0.25	5.40	4.10	0.21	7.6	11.9	7.19	64,000	7.14
8-Nov-12	8	13	0.34	4.90			8.1		3.06	60,000	7.42
30-Nov-12		<10			3.30	0.37					
5-Dec-12	13	10	0.38	4.30	3.70	0.42	7.8	11.9	7.19	32,000	7.03
29-Jan-13	8	13	0.42	3.50	8.40	0.45	7.1	16.0	7.33	7,100	7.3
19-Feb-13	12	26	0.90	3.60	9.60	0.52	8.1	18.2	7.1	40,000	7.12
28-Mar-13	6	13	0.38	4.50	8.80	0.55	12	21.4	7.6	17,000	7.77
29-Apr-13	17	14	0.44	5.40	6.60	0.55	8	15.2	6.89	36,000	7.46
17-May-13	13	14	0.50	5.10	8.00	0.57	8.2	16.8	7.59	29,000	7.53
24-Jun-13	5	2	0.13	0.98	6.50	0.18	2.7	9.4	7.89	20,000	7.1
Q2 Sample count	3	3	3	3	3	3	3	3	3	3	3
Q2 Average	11.7	10.0	0.4	3.8	7.0	0.4	6.3	13.8	7.5	28,333	7.4
YTD Average	10.2	13.7	0.5	3.8	8.0	0.5	7.7	16.1	7.4	24,850	7.4
12-mo Rolling Avg.	11.2	14.0	0.4	4.5	4.6	0.6	7.6	14.5	6.2	52,925	7.3
12-mo Count	12	14	12	12	18	18	12	9	12	12	12

notes: - Shaded area exceeds compliance limit.

1. Compliance Limits stipulated in Certificate of Approval for the Sewage System.
2. na - No compliance limits stipulated by Certificate of Approval.
3. YTD - Year to date

CH2M HILL Canada Limited
72 Victoria Street S., Suite 300

Kitchener, Ontario, N2G 4Y9
Tel 519.579.3500
Fax 519.579.8986

July 29, 2013

376569

Mini Lakes Residents Association
7541 Wellington County Road 34, East
Guelph, Ontario
N1H - 6H9

Re: Groundwater & Surface Water Monitoring Report
2nd Quarter – April to June, 2013

Attention: Tom Boyd
President

Background

In accordance with Certificate of Approval – Sewage - No. 6792-6U8JKA (revised) – Mini Lakes Residents Association, quarterly groundwater sampling and monitoring and quarterly surface water sampling are required to be completed by the Mini Lakes Residents Association (MLRA).

The Certificate of Approval for Mini Lakes sampling requirements were revised as of the first quarter of 2007. This revision resulted in a reduction of surface water sampling to quarterly events during the year. Previously, surface water was sampled monthly during the open water seasons.

The sewage treatment plant and associated disposal trenches were commissioned in April, 2001. This report is a summary of groundwater and surface water quality data obtained during the second quarter of 2013. All sampling and monitoring was performed in May, 2013.

Sampling and monitoring are performed by American Water Services (AWS) of Hamilton, Ontario. AWS performs the quarterly sampling and monitoring program, with quarterly report preparation by CH2M HILL Canada Limited. AWS is the operator of both the sewage treatment works and the water works systems.

There are nine groundwater sampling and monitoring locations. Figure 1-1 illustrates the locations of all permanent groundwater and surface water sampling and monitoring locations.

Groundwater Sampling – Analytical Results

The groundwater sampling results from the 2nd quarter in 2013 are included as attachments to this report. Table 1 is a summary of the concentrations observed in groundwater from all monitoring wells sampled for the key parameters of nitrates, total phosphorus (Tp), and E. coli . These three parameters were identified by the MOE during pre-construction discussions as the main parameters of concern. It should be noted that total coliforms were specified in the original Certificate of Approval No. 3-0356-99-006. However, a MOE Technical Memorandum dated April 5, 2007 from the Technical Support Section of the West Central Region to the Environmental Officer of the Guelph District Office recommended that E. coli be reported instead of total coliforms. E. coli concentrations have been reported instead of total coliforms since July, 2007.

This summary report is comprised of groundwater data collected during the single May event in the 2nd quarter of 2013. The results are compared to:

i) the Ontario Drinking Water Quality Standards (ODWQS) as indicated in Ontario Regulation 169/03

ii) the Reasonable Use Policy (RUP) objectives established for Mini Lakes based on water quality conditions at the upstream property boundary prior to the commencement of the operation of the Class 6 - Wastewater Treatment System in April, 2001

iii) the Provincial Water Quality Objectives (PWQO) – 1994

iv) the Canadian Environmental Quality Guidelines (CEQG) - 2012

The nitrate concentration at the property boundary was the most critical nutrient identified by the MOE during completion of the Certificate of Approval for Mini Lakes.

Nitrate Concentrations:

The RUP for nitrate in groundwater was set at 2.74 mg/L at the downstream property boundary and is represented by groundwater monitoring well "MW8". The upstream property boundary is represented by "MW1". The nitrate concentrations at both MW1 and MW8 were non-detectable. During the 2nd quarter of 2013, nitrate concentrations were above the RUP at MW2 (6.7 mg/L) and MW4 (7.4 mg/L). Nitrate concentrations at these locations have often exceeded the RUP since sampling and monitoring began in 2001.

Total Phosphorus (Tp) Concentrations:

There is no ODWQS for Tp in groundwater. The observed concentration for Tp at the upstream property boundary, MW1, was 0.47 mg/L. At the downstream property boundary, MW8, the observed Tp concentration was 0.47 mg/L. The highest Tp concentration observed in the 2nd quarter of 2013 was at MW5, with a reported concentration of 0.78 mg/L. The Tp concentration at MW10 has been elevated since the well was installed in 2010 with a reported concentration of 15 mg/L during the 1st quarter of 2013. However, Tp concentrations at this location were non-detectable during the 2nd quarter of 2013.

Escherichia coli (E. coli) Concentrations:

The ODWQS for E. coli in groundwater is 0 CFU/100mL. The E. coli concentration observed at both MW1 and MW8 was 0 CFU/100mL. The E. coli concentration was reported to be 0 CFU/100mL at all monitoring well locations during the 2nd quarter of 2013.

Overburden Groundwater Elevations

Water level elevations were measured in each monitoring well prior to purging and sampling during the 2nd quarter of 2013. The actual overburden groundwater elevations and "top of pipe" elevations in each monitoring well are calculated from topographic survey measurements taken at each monitoring well. The second quarter water level measurements were taken in late May, 2013.

Table 2 is a summary of the second quarter groundwater level measurements and the actual groundwater elevations.

A comparison between the second quarter groundwater elevations (metres below ground surface – mbgs) between May 2013 and June, 2012, indicates an overall increase in overburden groundwater elevation in May 2013. The increase in groundwater elevations ranged between 0.01 m (MW1) to 0.27 m (MW4) higher. Groundwater elevations decreased at only one location, MW10, by 0.14 m.

Surface Water Sampling – Analytical Results

Surface water sampling was conducted once in Q2 and in May 2013, as required in the Certificate of Approval. These sampling results are included as an attachment to the report. Table 3 is a summary of the concentrations detected in the surface water from all monitoring locations for the key parameters of Nitrates, Tp and E. coli.

Nitrate Concentrations:

During initial criteria evaluation prior to project initiation, the original criteria for nitrate at the downstream property boundary, represented by surface water sampling station, "SW6", was 1.08 mg/L, based on historical results and the maximum concentration for nitrate observed at the downstream property boundary. The new guideline is 3.0 mg/L as specified in the Canadian Environmental Quality Guidelines (CEQG). At both the upstream (SW1) property boundary and downstream (SW6) property boundary, the nitrate concentration was non-detectable. The maximum nitrate concentration of 0.31 mg/L was observed at SW5 during the 2nd quarter of 2013. No exceedances of the CEQG were observed during the 2nd quarter of 2013.

Total Phosphorus (Tp) Concentrations:

The Total Phosphorus (Tp) Water Quality Fishery Objective for lakes and ponds is 0.03 mg/L. The Tp concentration observed at the upstream property boundary, SW1, was 0.025 mg/L. The Tp concentration observed at the downstream property boundary, SW6, was non-detectable. Tp concentrations at all other surface water sampling location were non-detectable in the 2nd quarter of 2013.

E. coli Concentrations:

The E. coli concentration at the upstream property boundary, SW1, was observed to be 6 CFU/100mL during the 2nd quarter of 2013. At the downstream property boundary, SW6, the E. coli concentration was observed to be 12 CFU/100mL. The maximum E. coli concentration was observed at SW5 at 570 CFU/100mL. This is notably higher than the maximum E. coli concentration of 110 CFU/100mL observed during the second quarter of 2012 at the same location. SW5 is an offsite location that is not influenced by Mini Lakes onsite activities. SW5 is located on an up gradient tributary that discharges to the main Mini Lakes surface waterway just before the downstream Mini Lakes /Mill Creek estates property boundary.

Limitations

This report has been reviewed by a Professional Geoscientist from CH2M HILL Canada Limited. All sampling, monitoring and lab analyses were performed and reported by others. This report summarizes the results of this work only and cannot substantiate whether or not approved MOE procedures and standard protocol were followed during the collection of the samples.

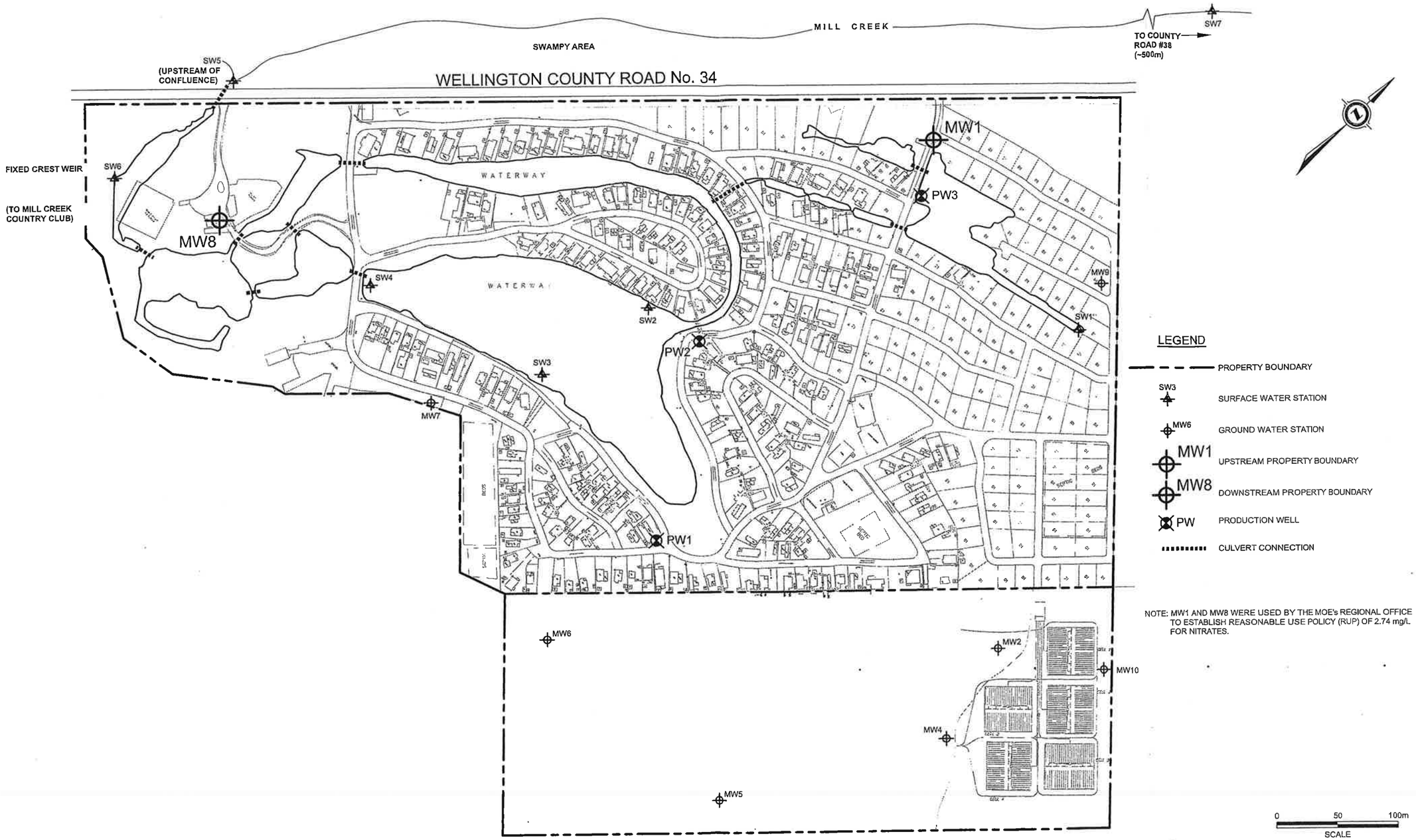
Sincerely,

CH2M HILL Canada Limited

Ed McGurk, P. Geo.
Project Manager

cc: Miles MacCormack
Stantec Consultants

March 21, 2011



NOTE: MW1 AND MW8 WERE USED BY THE MOE's REGIONAL OFFICE TO ESTABLISH REASONABLE USE POLICY (RUP) OF 2.74 mg/L FOR NITRATES.

CH2MHILL

MINI LAKES RESIDENTS ASSOCIATION

FIGURE 1-1
SAMPLING LOCATION PLAN

PROJECT No. 376569.A3.RP

44338F07F

Table 1
Mini Lakes Residents Association
Nutrient Concentrations observed
Q2 - May 2013
Ground Water Monitoring Wells

Well No.	NITRATES mg/L	RUP mg/L	T. PHOSPHORUS mg/L	MAC mg/L	Escherichia coli CFU/100mL	MAC - ODWQS CFU/100mL
* MW1	**ND**	2.74	**0.47**	N/A	**0**	0
MW2	6.7	2.74	ND	N/A	0	0
MW4	7.4	2.74	ND	N/A	0	0
MW5	0.17	2.74	0.78	N/A	0	0
MW6	0.50	2.74	0.11	N/A	0	0
MW7	ND	2.74	0.17	N/A	0	0
** MW8	**ND**	2.74	**0.47**	N/A	**0**	0
MW9	ND	2.74	0.16	N/A	0	0
MW10	ND	2.74	ND	N/A	0	0

Notes:

* MW1	- upstream property boundary
** MW8	- downstream property boundary
	- exceeds RUP or ODWQS at property boundary
ND	- Non-detectable
a	- Values reported may be biased low due to overgrowth
N/A	- Not Applicable
RUP	- Reasonable Use Policy Guideline
ODWQS	- Ontario Drinking Water Quality Standard

Table 2
Mini Lakes - Residents Association
Monitoring Well Program
Variance between Ground Water Elevations - Q2 - 2012 vs. Q2 - 2013
Q2 - April to June, 2013
(metres - below top of pipe)

Location	Ground (masl)	Top (masl)	Stick-Up Height (m)	June-12 Water Level (bgl)	June-12 Water Elevation (masl)	May-13 Water Level (bgl)	May-13 Water Elevation (masl)	Variance between Jun.'12 & May'13 (m)
MW1	322.46	323.01	0.55	1.37	321.64	1.36	321.65	0.01
MW2	323.26	324.20	0.94	2.51	321.69	2.25	321.95	0.26
MW4	322.22	323.24	1.02	2.29	320.95	2.02	321.22	0.27
MW5	322.12	323.04	0.92	2.13	320.91	1.94	321.10	0.19
MW6	320.93	321.93	1.00	2.17	319.76	2.00	319.93	0.17
MW7	320.25	321.18	0.93	1.96	319.22	1.94	319.24	0.02
MW8	319.76	320.56	0.80	1.72	318.84	1.68	318.88	0.04
MW9	322.02	322.84	0.82	1.09	321.75	0.88	321.96	0.21
MW10	324.06	325.16	1.10	2.53	322.63	2.67	322.49	-0.14

Table 3
Mini Lakes Residents Association
Nutrient Concentrations Observed
Q2 - May 2013
Surface Water Monitoring

Well No. *CEQG*	NITRATES (mg/L) *3.0*	Month Observed	Exceed.	T. PHOSPHORUS (mg/L) *0.03*	Month Observed	Exceedances *(Policy Guideline)*	Escherichia coli (CFU/100mL) *PWQO - 100*	Month Observed	Exceedances
* SW1	**ND**	May	None	**0.025**	May	None	**6**	May	None
SW2	0.18	May	None	<0.02	May	None	280	May	Yes
SW3	0.19	May	None	<0.02	May	None	27	May	None
SW4	0.18	May	None	<0.02	May	None	70	May	None
SW5	0.31	May	None	<0.02	May	None	570	May	Yes
** SW6	**ND**	May	None	<0.02	May	None	**12**	May	None
SW7	ND	May	None	<0.02	May	None	24	May	None

Notes:

* **SW1** - upstream property boundary

** **SW6** - downstream property boundary

PWQO - Provincial Water Quality Objectives - PWQO - 1994 - (Lakes and ponds)

CEQG - Canadian Environmental Quality Guideline - 2012

- Exceeds PWQO at property boundary

Maxxam

Success Through Science®

Your Project #: MINI LAKES
Site Location: GUELPH, ON

Attention: Allan Hill

American Water Services Canada Corp
701 Main Street W
Suite 100
Hamilton, ON
L8S 1A2

Your C.O.C. #: na, 120F1, 120F2, 120F4, 120F5, 120F6, 120F7, 120F8, 120F9, 120FA

Report Date: 2013/05/31

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B378761
Received: 2013/05/23, 14:46

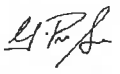
Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Carbonaceous BOD	9	N/A	2013/05/29	CAM SOP-00427	APHA 5210B
Dissolved Organic Carbon (DOC)	9	N/A	2013/05/25	CAM SOP-00446	SM 5310 B
E.coli, (CFU/100mL)	9	N/A	2013/05/23	CAM SOP-00552	MOE LSB E3371
Total Ammonia-N	9	N/A	2013/05/28	CAM SOP-00441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water (1)	9	N/A	2013/05/27	CAM SOP-00440	SM 4500 NO3I/NO2B
Total Kjeldahl Nitrogen in Water	9	2013/05/28	2013/05/30	CAM SOP-00454	EPA 351.2 Rev 2
Total Phosphorus (Colourimetric)	9	2013/05/27	2013/05/28	CAM SOP-00407	SM 4500 P,B,F
Total Suspended Solids	9	N/A	2013/05/27	CAM SOP-00428	SM 2540D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key



Preeti Gururajan
31 May 2013 13:27:21 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Preeti Gururajan, Project Manager
Email: PGururajan@maxxam.ca
Phone# (905) 817-5734

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam

Maxxam Job #: B378761
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
Sampler Initials: AH

RESULTS OF ANALYSES OF WATER

Maxxam ID		RP8734			RP8735		
Sampling Date		2013/05/23 12:35			2013/05/23 11:05		
COC Number		120F1			120F2		
	Units	**MW-1**	**RDL**	**QC Batch**	**MW-2**	**RDL**	**QC Batch**
Inorganics							
Total Ammonia-N	mg/L	1.8	0.050	3225632	0.051	0.050	3225632
Total Carbonaceous BOD	mg/L	ND	2	3223068	ND	2	3223068
Total Kjeldahl Nitrogen (TKN)	mg/L	2.8	0.20	3226300	0.12	0.10	3226300
Dissolved Organic Carbon	mg/L	17	0.20	3224375	1.6	0.20	3224375
Total Phosphorus	mg/L	0.47	0.020	3226004	ND	0.020	3226004
Total Suspended Solids	mg/L	890	50	3225137	ND	10	3224941
Nitrite (N)	mg/L	ND	0.010	3224376	ND	0.010	3224376
Nitrate (N)	mg/L	ND	0.10	3224376	6.7	0.10	3224376

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		RP8736			RP8737		
Sampling Date		2013/05/23 10:55			2013/05/23 11:30		
COC Number		120F4			120F5		
	Units	**MW-4**	**RDL**	**QC Batch**	**MW-5**	**RDL**	**QC Batch**
Inorganics							
Total Ammonia-N	mg/L	ND	0.050	3225632	0.080	0.050	3225632
Total Carbonaceous BOD	mg/L	ND	2	3223068	ND	2	3223068
Total Kjeldahl Nitrogen (TKN)	mg/L	0.14	0.10	3226300	1.0	0.20	3226300
Dissolved Organic Carbon	mg/L	1.3	0.20	3224375	1.3	0.20	3224375
Total Phosphorus	mg/L	ND	0.020	3226004	0.78	0.020	3226004
Total Suspended Solids	mg/L	13	10	3225137	1100	33	3225137
Nitrite (N)	mg/L	ND	0.010	3224376	ND	0.010	3224373
Nitrate (N)	mg/L	7.4	0.50	3224376	0.17	0.10	3224373

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B378761
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
Sampler Initials: AH

RESULTS OF ANALYSES OF WATER

Maxxam ID		RP8738		RP8739			RP8740		
Sampling Date		2013/05/23 11:35		2013/05/23 11:45			2013/05/23 12:00		
COC Number		120F6		120F7			120F8		
	Units	**MW-6**	**QC Batch**	**MW-7**	**RDL**	**QC Batch**	**MW-8**	**RDL**	**QC Batch**
Inorganics									
Total Ammonia-N	mg/L	0.41	3225632	0.082	0.050	3225632	2.0	0.050	3225632
Total Carbonaceous BOD	mg/L	ND	3223068	ND	2	3223068	ND	2	3223068
Total Kjeldahl Nitrogen (TKN)	mg/L	0.26	3226300	0.39	0.10	3226300	2.6	0.20	3226300
Dissolved Organic Carbon	mg/L	0.94	3224375	2.5	0.20	3224375	7.1	0.20	3224375
Total Phosphorus	mg/L	0.11	3226004	0.17	0.020	3226004	0.47	0.020	3226004
Total Suspended Solids	mg/L	110	3225137	280	10	3225137	400	20	3225137
Nitrite (N)	mg/L	ND	3224376	ND	0.010	3224373	ND	0.010	3224376
Nitrate (N)	mg/L	0.50	3224376	ND	0.10	3224373	ND	0.10	3224376

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		RP8741			RP8742		
Sampling Date		2013/05/23 13:00			2013/05/23 10:40		
COC Number		120F9			120FA		
	Units	**MW-9**	**RDL**	**QC Batch**	**MW-10**	**RDL**	**QC Batch**
Inorganics							
Total Ammonia-N	mg/L	2.5	0.050	3225632	0.085	0.050	3225632
Total Carbonaceous BOD	mg/L	ND	2	3223068	ND	2	3223068
Total Kjeldahl Nitrogen (TKN)	mg/L	4.0	0.20	3226300	0.14	0.10	3226300
Dissolved Organic Carbon	mg/L	17	0.20	3224375	1.1	0.20	3224375
Total Phosphorus	mg/L	0.16	0.020	3226004	ND	0.020	3226004
Total Suspended Solids	mg/L	96	20	3225137	ND	10	3224941
Nitrite (N)	mg/L	ND	0.010	3224373	ND	0.010	3224506
Nitrate (N)	mg/L	ND	0.10	3224373	ND	0.10	3224506

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B378761
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
Sampler Initials: AH

MICROBIOLOGY (WATER)

Maxxam ID		RP8734	RP8735	RP8736	RP8737	RP8738	
Sampling Date		2013/05/23 12:35	2013/05/23 11:05	2013/05/23 10:55	2013/05/23 11:30	2013/05/23 11:35	
COC Number		120F1	120F2	120F4	120F5	120F6	
	Units	**MW-1**	**MW-2**	**MW-4**	**MW-5**	**MW-6**	**QC Batch**
Microbiological							
Escherichia coli	CFU/100mL	0	0	0	0	0	3222578

QC Batch = Quality Control Batch

Maxxam ID		RP8739	RP8740	RP8741	RP8742	
Sampling Date		2013/05/23 11:45	2013/05/23 12:00	2013/05/23 13:00	2013/05/23 10:40	
COC Number		120F7	120F8	120F9	120FA	
	Units	**MW-7**	**MW-8**	**MW-9**	**MW-10**	**QC Batch**
Microbiological						
Escherichia coli	CFU/100mL	0	0	0	0	3222578

QC Batch = Quality Control Batch

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Maxxam Job #: B378761
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
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Package 1	4.0°C
Package 2	4.7°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

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American Water Services Canada Corp
Attention: Allan Hill
Client Project #: MINI LAKES
P.O. #:
Site Location: GUELPH, ON

Quality Assurance Report

Maxxam Job Number: WB378761

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3223068 HTR	QC Standard	Total Carbonaceous BOD	2013/05/29		105	%	75 - 125
	Method Blank	Total Carbonaceous BOD	2013/05/29	ND, RDL=2		mg/L	
	RPD	Total Carbonaceous BOD	2013/05/29	4.2		%	25
3224373 C_H	Matrix Spike	Nitrite (N)	2013/05/27		97	%	80 - 120
		Nitrate (N)	2013/05/27		96	%	80 - 120
	Spiked Blank	Nitrite (N)	2013/05/27		96	%	85 - 115
		Nitrate (N)	2013/05/27		95	%	85 - 115
	Method Blank	Nitrite (N)	2013/05/27	ND, RDL=0.010		mg/L	
		Nitrate (N)	2013/05/27	ND, RDL=0.10		mg/L	
	RPD	Nitrate (N)	2013/05/27	NC		%	25
3224375 AHA	Matrix Spike						
	[RP8742-01]	Dissolved Organic Carbon	2013/05/25		97	%	80 - 120
	Spiked Blank	Dissolved Organic Carbon	2013/05/25		99	%	80 - 120
	Method Blank	Dissolved Organic Carbon	2013/05/25	0.28, RDL=0.20		mg/L	
	RPD [RP8742-01]	Dissolved Organic Carbon	2013/05/25	0.09		%	20
3224376 C_H	Matrix Spike	Nitrite (N)	2013/05/27		91	%	80 - 120
		Nitrate (N)	2013/05/27		NC	%	80 - 120
	Spiked Blank	Nitrite (N)	2013/05/27		95	%	85 - 115
		Nitrate (N)	2013/05/27		93	%	85 - 115
	Method Blank	Nitrite (N)	2013/05/27	ND, RDL=0.010		mg/L	
		Nitrate (N)	2013/05/27	ND, RDL=0.10		mg/L	
	RPD	Nitrite (N)	2013/05/27	NC		%	25
		Nitrate (N)	2013/05/27	0.4		%	25
3224506 C_H	Matrix Spike						
	[RP8742-01]	Nitrite (N)	2013/05/27		96	%	80 - 120
		Nitrate (N)	2013/05/27		92	%	80 - 120
	Spiked Blank	Nitrite (N)	2013/05/27		95	%	85 - 115
		Nitrate (N)	2013/05/27		92	%	85 - 115
	Method Blank	Nitrite (N)	2013/05/27	ND, RDL=0.010		mg/L	
		Nitrate (N)	2013/05/27	ND, RDL=0.10		mg/L	
	RPD [RP8742-01]	Nitrite (N)	2013/05/27	NC		%	25
		Nitrate (N)	2013/05/27	NC		%	25
3224941 SUP	QC Standard	Total Suspended Solids	2013/05/27		95	%	85 - 115
	Method Blank	Total Suspended Solids	2013/05/27	ND, RDL=10		mg/L	
	RPD [RP8735-03]	Total Suspended Solids	2013/05/27	NC		%	25
3225137 GKR	QC Standard	Total Suspended Solids	2013/05/27		97	%	85 - 115
	Method Blank	Total Suspended Solids	2013/05/27	ND, RDL=10		mg/L	
	RPD [RP8736-03]	Total Suspended Solids	2013/05/27	NC		%	25
3225632 COP	Matrix Spike	Total Ammonia-N	2013/05/28		106	%	80 - 120
	Spiked Blank	Total Ammonia-N	2013/05/28		102	%	85 - 115
	Method Blank	Total Ammonia-N	2013/05/28	ND, RDL=0.050		mg/L	
	RPD	Total Ammonia-N	2013/05/28	6.4		%	20
3226004 VRO	Matrix Spike						
	[RP8742-04]	Total Phosphorus	2013/05/28		104	%	80 - 120
	QC Standard	Total Phosphorus	2013/05/28		103	%	85 - 115
	Spiked Blank	Total Phosphorus	2013/05/28		101	%	85 - 115
	Method Blank	Total Phosphorus	2013/05/28	ND, RDL=0.020		mg/L	
	RPD [RP8742-04]	Total Phosphorus	2013/05/28	NC		%	20
3226300 C_N	Matrix Spike	Total Kjeldahl Nitrogen (TKN)	2013/05/30		115	%	80 - 120
	QC Standard	Total Kjeldahl Nitrogen (TKN)	2013/05/30		82	%	80 - 120
	Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2013/05/30		83	%	80 - 120
	Method Blank	Total Kjeldahl Nitrogen (TKN)	2013/05/30	ND, RDL=0.10		mg/L	
	RPD	Total Kjeldahl Nitrogen (TKN)	2013/05/30	7.4		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

American Water Services Canada Corp
Attention: Allan Hill
Client Project #: MINI LAKES
P.O. #:
Site Location: GUELPH, ON

Quality Assurance Report (Continued)

Maxxam Job Number: WB378761

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: B378761

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Cristina Carriere, Scientific Services

Maxima Hermanez, SENIOR ANALYST

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MAXXAM ANALYTICS — 6740 Campobello Road, Mississauga, ON L4V 1H1 — Fax: 905-817-5777 — Toll Free: (800) 563-6266

H2 205105123

23-May-13 14:46
Preeti Gururajan

B378761

NNA ENV-738

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INF	
Company Name	Mini Lakes Residents Association Clie#13944	Company Name	American Water Canada Corp	Quotation #	A42143
Contact Name	Accounts Payable	Contact Name	Allen Hill	P.O. #	
Address	7541 Wellington Rd 34, Comp 1	Address	701 Main Street West, Suite 100	Project #	
	Guelph, ON N1H 6H2		Hamilton, Ontario L8S 1A2	Project Name	Mini Lakes
Phone	519-763-1365 519-763-5474	Phone	(905) 979-0585 Fax 905-521-9613	Location	Guelph, ON
email	minilakes@bellnet.ca	Email	refer to comments	Sampled By	Allen Hill

9206

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

- ☐ MISA — Reg. 153 — ☐ Table 1 ☐ Table 2 ☐ Table 3
- ☐ PWQO
- ☐ Reg. 558
- ☒ Other — Monitoring (specify)

Report Criteria on C of A? ☐

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details

	Sample Identification	Waterlaxx #	Date Sampled	Time Sampled	Matrix (GW, SW, Soil etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	cBOD5, DOC	TSS	TP	Total Ammonia Nitrogen	Nitrate Nitrogen	Nitrite Nitrogen	TKN	E. Coli	pH	Conductivity	Sodium	Chloride	# of Cont.	COMMENTS / TAT COMMENTS
1	MW 1	120F1	23/05/13	12:35	Groundwater	N	N	X	X	X	X	X	X	X	X					5	Please forward results to the following
2	MW-2	120F2	23/05/13	11:05	Groundwater	N	N	X	X	X	X	X	X	X	X					5	e-mails
3					Groundwater	N	N														Ed.McGurk@ch2m.com
4	MW-4	120F4	23/05/13	10:55	Groundwater	N	N	X	X	X	X	X	X	X	X					5	ahill@amwater.com
5	MW-5	120F5	23/05/13	11:30	Groundwater	N	N	X	X	X	X	X	X	X	X					5	jpwilson@amwater.com
6	MW-6	120F6	23/05/13	11:35	Groundwater	N	N	X	X	X	X	X	X	X	X					5	MW#1-1.36m MW#2- 2.25m
7	MW-7	120F7	23/05/13	11:45	Groundwater	N	N	X	X	X	X	X	X	X	X					5	MW#4- 2.02m MW#5-1.94m
8	MW-8	120F8	23/05/13	12:00	Groundwater	N	N	X	X	X	X	X	X	X	X					5	MW#6- 2.0m MW#7- 1.84m
9	MW-9	120F9	23/05/13	13:00	Groundwater	N	N	X	X	X	X	X	X	X	X					5	MW#8- 1.88m MW#9-0.88m
10	MW-10	120FA	23/05/13	10:40	Groundwater	N	N	X	X	X	X	X	X	X	X					5	MW#10- 2.87m
11																					HELD IN WATERLOO
12																					

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only
/Allan Hill		May 23, 2013		Temperature (°C) on Receipt: 3/5/4 — Condition of Sample on Receipt: ☐ OK ☐ SIF
	[illegible]	13/05/23	14:46	

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

G: HAMILTON COC H2 205105123 17:25 3/6/5

2/3/5C

1/2/1°C

Maxxam

Success Through Science®

Your Project #: MINI LAKES
Site Location: GUELPH, ON

Attention: Allan Hill

American Water Services Canada Corp
701 Main Street W
Suite 100
Hamilton, ON
L8S 1A2

Your C.O.C. #: na, 12102, 120FD, 120FE, 120FF, 12101, 12100, 120FB

Report Date: 2013/05/31

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B378749
Received: 2013/05/23, 14:42

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
E.coli, (CFU/100mL)	7	N/A	2013/05/23	CAM SOP-00552	MOE LSB E3371
Total Ammonia-N	7	N/A	2013/05/28	CAM SOP-00441	US GS I-2522-90
Nitrate (NO3) and Nitrite (NO2) in Water (1)	7	N/A	2013/05/27	CAM SOP-00440	SM 4500 NO3I/NO2B
Total Kjeldahl Nitrogen in Water	7	2013/05/28	2013/05/30	CAM SOP-00454	EPA 351.2 Rev 2
Total Phosphorus (Colourimetric)	7	2013/05/27	2013/05/28	CAM SOP-00407	SM 4500 P,B,F
Total Suspended Solids	7	N/A	2013/05/24	CAM SOP-00428	SM 2540D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Preeti Gururajan
31 May 2013 13:20:56 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Preeti Gururajan, Project Manager
Email: PGururajan@maxxam.ca
Phone# (905) 817-5734

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

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Maxxam Job #: B378749
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
Sampler Initials: AH

RESULTS OF ANALYSES OF WATER

Maxxam ID		RP8660		RP8661		RP8662		
Sampling Date		2013/05/23 09:50		2013/05/23 10:00		2013/05/23 11:20		
COC Number		12102		120FD		120FE		
	Units	**SW #5 COUNTY RD 34**	**QC Batch**	**SW #2 MAIN POND #1**	**QC Batch**	**SW #3 MAIN POND #2**	**RDL**	**QC Batch**
Inorganics								
Total Ammonia-N	mg/L	0.067	3225626	0.10	3225626	0.11	0.050	3225626
Total Kjeldahl Nitrogen (TKN)	mg/L	0.33	3226548	0.34	3226548	0.42	0.10	3226548
Total Phosphorus	mg/L	ND	3226004	ND	3226004	ND	0.020	3226004
Total Suspended Solids	mg/L	ND	3223601	ND	3223601	ND	10	3223601
Nitrite (N)	mg/L	ND	3224506	ND	3224376	ND	0.010	3224373
Nitrate (N)	mg/L	0.31	3224506	0.18	3224376	0.19	0.10	3224373
Nitrate + Nitrite	mg/L	0.31	3224506	0.18	3224376	0.19	0.10	3224373

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		RP8663		RP8664		RP8665		
Sampling Date		2013/05/23 10:05		2013/05/23 09:45		2013/05/23 09:55		
COC Number		120FF		12101		12100		
	Units	**SW #4 MAIN POND OUTLET**	**QC Batch**	**SW #7 MILL CR\RD.38**	**QC Batch**	**SW #6 PROPERTY OUTLET**	**RDL**	**QC Batch**
Inorganics								
Total Ammonia-N	mg/L	0.17	3225626	0.099	3225626	0.094	0.050	3225626
Total Kjeldahl Nitrogen (TKN)	mg/L	0.45	3226548	0.54	3226548	0.42	0.10	3226548
Total Phosphorus	mg/L	ND	3226004	ND	3226004	ND	0.020	3226004
Total Suspended Solids	mg/L	ND	3223601	ND	3223601	ND	10	3223601
Nitrite (N)	mg/L	ND	3224373	ND	3224506	ND	0.010	3224376
Nitrate (N)	mg/L	0.18	3224373	ND	3224506	ND	0.10	3224376
Nitrate + Nitrite	mg/L	0.18	3224373	ND	3224506	ND	0.10	3224376

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B378749
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
Sampler Initials: AH

RESULTS OF ANALYSES OF WATER

Maxxam ID		RP8666		
Sampling Date		2013/05/23 12:50		
COC Number		120FB		
	Units	**SW#1 UPGRADIENT TRIB**	**RDL**	**QC Batch**
Inorganics				
Total Ammonia-N	mg/L	0.073	0.050	3225626
Total Kjeldahl Nitrogen (TKN)	mg/L	0.56	0.10	3226548
Total Phosphorus	mg/L	0.025	0.020	3226004
Total Suspended Solids	mg/L	ND	10	3223601
Nitrite (N)	mg/L	ND	0.010	3224373
Nitrate (N)	mg/L	ND	0.10	3224373
Nitrate + Nitrite	mg/L	ND	0.10	3224373

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B378749
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
Sampler Initials: AH

MICROBIOLOGY (WATER)

Maxxam ID		RP8660	RP8661	RP8662	RP8663	RP8664	
Sampling Date		2013/05/23 09:50	2013/05/23 10:00	2013/05/23 11:20	2013/05/23 10:05	2013/05/23 09:45	
COC Number		12102	120FD	120FE	120FF	12101	
	Units	**SW #5 COUNTY RD 34**	**SW #2 MAIN POND #1**	**SW #3 MAIN POND #2**	**SW #4 MAIN POND OUTLET**	**SW #7 MILL CR\RD.38**	**QC Batch**
Microbiological							
Escherichia coli	CFU/100mL	570	280	27	70	24	3222578

QC Batch = Quality Control Batch

Maxxam ID		RP8665	RP8666	
Sampling Date		2013/05/23 09:55	2013/05/23 12:50	
COC Number		12100	120FB	
	Units	**SW #6 PROPERTY OUTLET**	**SW#1 UPGRADIENT TRIB**	**QC Batch**
Microbiological				
Escherichia coli	CFU/100mL	12	6	3222578

QC Batch = Quality Control Batch

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Maxxam Job #: B378749
Report Date: 2013/05/31

American Water Services Canada Corp
Client Project #: MINI LAKES
Site Location: GUELPH, ON
Sampler Initials: AH

Package 1	12.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

GENERAL COMMENTS

Results relate only to the items tested.

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American Water Services Canada Corp
Attention: Allan Hill
Client Project #: MINI LAKES
P.O. #:
Site Location: GUELPH, ON

Quality Assurance Report

Maxxam Job Number: WB378749

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
3223601	RAY	QC Standard	Total Suspended Solids	2013/05/24		99	%	85 - 115
		Method Blank	Total Suspended Solids	2013/05/24	ND, RDL=10		mg/L	
		RPD [RP8660-02]	Total Suspended Solids	2013/05/24	NC		%	25
3224373	C_H	Matrix Spike	Nitrite (N)	2013/05/27		97	%	80 - 120
			Nitrate (N)	2013/05/27		96	%	80 - 120
		Spiked Blank	Nitrite (N)	2013/05/27		96	%	85 - 115
			Nitrate (N)	2013/05/27		95	%	85 - 115
		Method Blank	Nitrite (N)	2013/05/27	ND, RDL=0.010		mg/L	
			Nitrate (N)	2013/05/27	ND, RDL=0.10		mg/L	
		RPD	Nitrate (N)	2013/05/27	NC		%	25
3224376	C_H	Matrix Spike	Nitrite (N)	2013/05/27		91	%	80 - 120
			Nitrate (N)	2013/05/27		NC	%	80 - 120
		Spiked Blank	Nitrite (N)	2013/05/27		95	%	85 - 115
			Nitrate (N)	2013/05/27		93	%	85 - 115
		Method Blank	Nitrite (N)	2013/05/27	ND, RDL=0.010		mg/L	
			Nitrate (N)	2013/05/27	ND, RDL=0.10		mg/L	
		RPD	Nitrite (N)	2013/05/27	NC		%	25
			Nitrate (N)	2013/05/27	0.4		%	25
3224506	C_H	Matrix Spike	Nitrite (N)	2013/05/27		96	%	80 - 120
			Nitrate (N)	2013/05/27		92	%	80 - 120
		Spiked Blank	Nitrite (N)	2013/05/27		95	%	85 - 115
			Nitrate (N)	2013/05/27		92	%	85 - 115
		Method Blank	Nitrite (N)	2013/05/27	ND, RDL=0.010		mg/L	
			Nitrate (N)	2013/05/27	ND, RDL=0.10		mg/L	
		RPD	Nitrite (N)	2013/05/27	NC		%	25
			Nitrate (N)	2013/05/27	NC		%	25
3225626	COP	Matrix Spike	Total Ammonia-N	2013/05/28		99	%	80 - 120
		Spiked Blank	Total Ammonia-N	2013/05/28		96	%	85 - 115
		Method Blank	Total Ammonia-N	2013/05/28	ND, RDL=0.050		mg/L	
		RPD	Total Ammonia-N	2013/05/28	NC		%	20
3226004	VRO	Matrix Spike	Total Phosphorus	2013/05/28		104	%	80 - 120
		QC Standard	Total Phosphorus	2013/05/28		103	%	85 - 115
		Spiked Blank	Total Phosphorus	2013/05/28		101	%	85 - 115
		Method Blank	Total Phosphorus	2013/05/28	ND, RDL=0.020		mg/L	
		RPD	Total Phosphorus	2013/05/28	NC		%	20
3226548	C_N	Matrix Spike [RP8663-03]	Total Kjeldahl Nitrogen (TKN)	2013/05/30		99	%	80 - 120
		QC Standard	Total Kjeldahl Nitrogen (TKN)	2013/05/30		90	%	80 - 120
		Spiked Blank	Total Kjeldahl Nitrogen (TKN)	2013/05/30		81	%	80 - 120
		Method Blank	Total Kjeldahl Nitrogen (TKN)	2013/05/30	ND, RDL=0.10		mg/L	
		RPD [RP8663-03]	Total Kjeldahl Nitrogen (TKN)	2013/05/30	NC		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

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Validation Signature Page

Maxxam Job #: B378749

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Maxima C. Hermanez

Maxima Hermanez, SENIOR ANALYST

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23-May-13 14:42
Preeti Gururajan

B378749

NNA ENV-604

Maxxam

Fax 905 817-5777 Toll Free (800) 563-6266

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name	Mini Lakes Residents Association Client# 13044	Company Name	American Water Canada Corp	Quotation #	A82443
Contact Name	Accounts Payable	Contact Name	Allan Hill	PO #	
Address	7541 Wellington R t 34 Comp 1	Address	727 Main Street West, Suite 100	Project #	
	Guelph ON N1H 6H9		Hamilton Ontario L8S 1A2	Project Name	Mini Lakes
Phone	519-763-1365	Phone	(905) 979-0696 Fax 905-521-9013	Location	Guelph ON
Email	minilakes@sellnet.ca	Email	refer to comments	Sampled By	Allan Hill

9206

REGULATORY CRITERIA	ANALYSIS REQUESTED (Please be specific):	TURNAROUND TIME (TAT) REQUIRED:
Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
☐ MNR ☒ Other Monitoring (specify)		Regular (Standard) TAT: ☒ 5 to 7 Working Days
☐ PWQO		Rush TAT: Rush Confirmation # (call lab for #)
☐ Reg 558		☐ 1 day ☐ 2 days ☐ 3 days
Report Criteria on C of A ? ☐		DATE Required
		TIME Required
		Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Water Use#	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSS	PP	Total Ammonia Nitrogen	Nitrate Nitrogen	Nitrite Nitrogen	Total Kjeldahl Nitrogen	E.Coli					# of Cont.	COMMENTS / TAT COMMENTS
1	SW #5 County Rd 34	120ZZ	23/05/13	9:50	Surface Water	N	N	X	X	X	X	X	X	X					4	Please forward results to the following
2	SW #2 Main Pond #1	120FD	23/05/13	10:00	Surface Water	N	N	X	X	X	X	X	X	X					4	Ed.McGurk@ch2m.com
3	SW #3 Main Pond #2	120FE	23/05/13	11:20	Surface Water	N	N	X	X	X	X	X	X	X					4	jpwilson@amwater.com
4	SW #4 Main Pond Outlet	120FF	23/05/13	10:05	Surface Water	N	N	X	X	X	X	X	X	X					4	ahill@amwater.com
5	SW #7 Mill Cr Rd 34	120ZY	23/05/13	9:45	Surface Water	N	N	X	X	X	X	X	X	X					4	SW#1-pH 8.27 20.5C
6	SW #6 Property Outlet	120ZX	23/05/13	9:35	Surface Water	N	N	X	X	X	X	X	X	X					4	SW#2-pH 8.12 20.9C
7	SW #1 Upstream Pond	120FB	23/05/13	12:50	Surface Water	N	N	X	X	X	X	X	X	X					4	SW#5-pH 8.26 21.9C
8																				SW#4-pH 8.10 20.3C
9																				SW#6-pH 8.20 15.2C
10																				SW#3-pH 8.39 21.0C
11																				SW#7-pH 8.33 17.9C
12																				

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only
Allan Hill				Temperature (°C) on Receipt: 1 / 1 / 2
		23/5/13	1442	Custody Seal Intact on Receipt: ☐ OK ☐ n/a
			14:42	

RECEIVED IN WATERLOO

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL DELAYS

One Team. Infinite Solutions.

This cover was printed on 100% postconsumer recycled, *Forest Stewardship Council® (FSC®) certified paper. This FSC® paper was manufactured entirely using wind-generated electricity, and was printed using environmentally friendly vegetable-based inks.

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