

SCHEMATIC PRODUCED BY BERT ALBISSER OF AQUA TECH SUPPLIES & SERVICES LTD.



EBA Engineering Consultants Ltd.

PROJECT

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
WHITEHORSE REGION

CLIENT



TITLE

WATER SYSTEM DISTRIBUTION/TREATMENT
SCHEMATIC SYSTEM ID.: 1322
GOLDEN HORN SCHOOL

DATE APRIL 2006

DWN. JSB

CHKD. RMM

FILE NO. 1260002.001

DWG.: FIGURE 1322B

**Whitehorse Region – Golden Horn School
Building # 1322**

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	STORAGE TANK					6Ft ϕ x 10'L
2	JET PUMP #1	MYERS	MJC-100		1596	1 1/4" x 1"
3	JET PUMP #2	MYERS	MJC-100			
4	PRESSURE TANK #1		PMD 52		B 90685140	
5	PRESSURE TANK #2		PMD 52		B 89257660.	
6	WATER FILTER	AMETEK	1 1/2" BB			1 1/2 x 10"
7	WATER FILTER CART	"	JOIDP97			3 3/4" x 10"
8						
9						
10						

TABLE 1322 - 1: SUMMARY OF BACTERIOLOGICAL RESULTS

Building #	Building Name	Number of Sampling Events	Time Period over which Sampling was Done	Any Positive Total Coliform Resluts? (yes or no)	Fraction of Positive Total Coliform Results vs. Total Sampling Events	Any positive E.Coli results? (yes or no)	Most Recent Sampling Event Available for EBA Review	Is Most Recent Result Positive?
1322	Golden Horn School	7	Sept-04 to Mar-05	no	0/7	no	2-Mar-05	no



Table 1322-2: Water Quality Results

SOURCE:	Building 1322 - Golden Horn School		GCDWQ Criteria		
Location/ Resident	Golden Horn Subdivision				
Address					
Treatment	Public Water System				
Source of Water	Delivery				
Purpose of Sampling	Baseline	Additional Sampling			
Sample Location		Staff Washroom Tap			
Date Sampled	Date	10-May-05	Lower Limit	Upper Limit	
Physical Tests (ALS)			AO	MAC	AO
UV Absorbance		<0.0010			
Field Chemistry (EBA)					
pH		7.83	6.5		8.5
TDS		208			500
EC (uS/cm)		410			
Temperature		13.9			
Free Available Chlorine		0.01			250

Notes:

A. Guidelines indicated for hardness are not CDWQG, rather they are general aesthetic guidelines - exceedences are indicated in yellow highlighting.

Shading indicates exceedence of Proposed MAC guideline (arsenic).

Bold Underline with Yellow shading indicates exceedence of CDWQG MAC

Results are expressed as milligrams per litre except for pH and Colour (CU), Conductivity (umhos/cm), Temperature (°C) and Turbidity (NTU)

< = Less than the detection limit indicated.

AO = Aesthetic Objective

MAC = Maximum Acceptable Concentration (Health Based)



**Table 1322-3: Summary of Well Assessment Results
SMALL PUBLIC DRINKING WATER SYSTEMS**

Well Identification and Location					
Building #	Building Name	Location	Northing (+/- 10 m)	Easting (+/- 10 m)	Grade Elevation (+/- 10 m)
1322	Golden Horn School	Golden Horn	6718787	507049	739

Well Details							
Well Casing Diameter (mm)	Year Well Installed	Well Log?	Well Depth (m bg)	Reported Low Permeability Protective Layer?	Pump Setting (m bg)	Well Capacity - Tested, or Reported by User	Static Water Level Below Ground (m-btwc)
150	?	?	?	?	?	Too little for school, well abandoned	?

Well Construction Details				
Wellhead Above ground (m)	Well Cap	Well Screen	Surface Seal	Apron Grading
Buried Underground	Metal Plate welded on	?	Unlikely	No



**Table 1322-4: Potential Contaminant Sources
Building 1322 –Golden Horn School**

Potential Contaminant Source	Potential Contaminants	Distance from Water Source	Northing	Easting
Dump or Landfill	<i>Organic</i> and inorganic chemicals.	>>120 m		
Cemetery	<i>Biological</i> ¹ , inorganic ² and organic parameters.	>>120 m		
Sewage lagoon	<i>Biological</i> , inorganic and organic parameters.	>>300 m		
Sewage lines, mains and lift stations	<i>Biological</i> , inorganic and organic parameters.	>>30 m		
Septic tanks	<i>Biological and Inorganic</i> parameters.	29 m	6718759	507053
Septic fields	<i>Biological and Inorganic</i> parameters	>60 m		
Gas stations	<i>Organic and Inorganic</i> parameters.	800 m		
Undergrounds Fuel Storage Tanks (USTs)	<i>Organic</i> parameters.	>>30 m		
Above ground storage tanks (ASTs)	<i>Organic parameters.</i>	7 m	6718786	507042
Naturally occurring sources of contamination	<i>Radionuclides, Bacteria and Viruses from surfacewater sources.</i>	Greater than 150 m		

Notes: *Bold highlighting of distances indicates non-compliance with proposed guidelines*

1- Biological parameters include: bacteria, viruses, protozoa (parasitic organisms), helminthes (intestinal worms), and bio aerosols (inhalable moulds and fungi).

2 – Inorganic contaminants could include arsenic in embalming chemicals (prior to early 1900’s), and heavy metals in caskets.

Required Setback Distances Draft Guidelines for Part III – Small Public Drinking Water Systems:

300 m (1,000 ft) from a sewage lagoon or pit and manure heaps

120 m (400 ft) from a solid waste dump or a cemetery

30 m (100 ft) from any other potential source of contamination



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SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: Ryan Martin
Luke Lebel

Date May 10, 2005

WELL ID #	Owner	Location Description
1322	YTG	Golden Horn School

1. Well Location and Potential Contaminant Sources

a. General location of well: (Community, Subdivision, etc.)

Golden Horn Subdivision

b. Specific location: (Road or street, Building number, name of owner and/, legal description,

Golden Horn School

c. GPS location: 507049 Easting 6718787 Northing, 739m elev. ±7m

d. Is there electric power? Yes No

e. Does the well system have:

15 or more service connections to a piped distribution system? If so how many _____

Abandoned

5 or more delivery sites on a trucked distribution system? If so how many _____

f. Nearest building, specify Golden Horn School

g. Distance from well to building approximately 3m

h. If there is an effluent disposal field, is its location known? Yes No

i. Distance from well to nearest point of known field: > 60m

j. Well location relative to field: upslope downslope lateral

29m to septic tank

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k. Is there any part of a sewage disposal system(s) or other potential sources of pollution that may pose a health and safety risk within 30 m? Yes No

Septic tank 25m away

l. Is the well located within 300 m from a sewage lagoon or pit? Yes No

m. Is the well located within 120 m from a solid waste site or dump, cemetery? Yes No

n. Is the infrastructure protecting the wellhead, pumphouse, storage tank and/or water treatment plant designed and secured to prevent:

Unauthorized access by humans? Yes No Entrance by animals? Yes No

The well is buried underneath a road, the wellhead is welded shut

o. Is well site subject to flooding? Yes No

p. Is the well site well drained? Yes No

q. Is there a buried fuel tank on the property? Yes No

If yes, is it in use abandoned

Is the location known? Yes No

Distance from the well to known buried tank _____

r. Are there any other known contaminant sources on the property?

Yes No Describe _____

If yes, specify the source: dump sewage lagoon cemetery other

Potential Source 1: Heating Oil Tank; Distance from well to Potential Source 1: 7m inside water storage building

Potential Source 2: _____; Distance from well to Potential Source 2: _____

Potential Source 3: _____; Distance from well to Potential Source 3: _____

Potential Source 4: _____; Distance from well to Potential Source 4: _____

s. Are there other wells on this property? Yes No

How many? _____ in use abandoned require proper sealing

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2. Well and Wellhead information:

- a. When was well installed? Year _____ Month _____
- b. Type: drilled dug sand point other _____
- c. Is there a drillers log for the well: Yes No
- d. Is there a surface seal to 6 m Yes No unknown unlikely
- e. Surface casing: Yes Diameter _____ No
- f. Well casing: Diameter 15cm Material: steel plastic concrete
- g. Depth of well: _____ measured (if possible) reported from log
- h. Static water level below ground: N/A - abandoned
 measured (if possible) reported from log flowing
- i. (If granular) Is the well completed: open end casing with a well screen
 with slotted pipe unknown other _____
- j. (If bedrock) Does the well have a liner? yes No steel plastic
- k. If there is a well screen: length _____ slot size(s) _____
Location of screen: from _____ to _____ from log reported
- l. Is there a sump below the screen? Yes No unlikely
- m. Is the well head: in pumphouse in pit pitless adaptor in a building
N/A - abandoned, Burried underground
 in a wooden enclosure other, describe _____
- n. If the well head is located in a wooden enclosure,

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- i. Is the well head below grade? describe in detail Buried underground
- ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? Yes No
- iii. Is the wellhead enclosed by fiberglass insulations? Yes No
- iv. Any evidence of rodents? Specify _____
- v. Does the well casing have a proper seal cap? Yes No

If no, describe condition _____

3. Water Supplying This Well:

- a. By definition is the water from a surface water source or under the direct influence of surface water?
 Yes No farther investigation required.

If yes is there treatment Yes No

Explain (filtration, disinfection etc...) _____

4. Aquifer Supplying This Well:

- a. The aquifer is: bedrock granular sediment unknown
- b. Does water level and/or well capacity show seasonal fluctuation? Yes No

5. Pump Installation:

- a. Is the well equipped with a pump? yes No
- b. Type of pump: hand electric submersible jet
 shallow well centrifugal other, _____
- c. Description: Manufacturer _____ Model _____
horsepower _____ capacity _____ voltage _____

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d. Date installed: _____ By: _____

e. For submersible pump, depth of setting below surface _____

f. Drop pipe for submersible pump: steel plastic N/A

g. Pump delivers water to: pressure tank elevated tank other N/A

h. Are there automatic pump controls: Yes No

i. Is there provision for taking water samples before water reaches storage? Yes No

j. Is there a water meter on the system? Yes No

k. Is the pump and piping protected from freezing? Yes No

If yes, describe: _____

l. Comments on pump installation: The well was abandoned after installation due to low flow rate and high iron content

6. Conclusions

a. Comments on overall installation:

b. Recommendations: _____

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PART B: EBA Site Inspection

Inspector: BURT ABRISSEER

Date MAY 10 - 05

WELL ID #	Owner	Location Description
1322	YTG	GOLDEN HORN SCHOOL

6. Water Treatment

- a. Is well water treated? Yes No; Type of treatment: DELIVERED WATER
- chlorination iron and or manganese removal other _____
- b. Is water entering plumbing or piped distribution system treated with chlorine or another treatment that is as effective as chlorine used to achieve disinfection throughout the system?
- Yes No If so how _____
- c. If treated with chlorine, is the free residual chlorine concentration less than 0.2 mg/L
- Yes No _____ reading.
- Tested at _____ (location)
- d. Is testing for chlorine residual concentration done at the tap (eg. Kitchen faucet) or from representative points in a piped distribution system, including a point from tap at the end line
- Yes No If yes how often? _____
- e. If the drinking water is being transported by water delivery truck does it have a minimum chlorine free residual of 0.4 mg/L at the time of fill. Yes No

7. Water Quality (observations):

- a. Does the water stain plumbing? yes No slight severe
- Type of stain: brown red black
- b. Does the water contain sediment? Yes No occasional constant
- c. Is there an unpleasant odour? Yes No H₂S Other _____

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- d. Is there an unpleasant taste? Yes No brackish Other _____
- e. Is there a history of bad bacterial analyses? Yes No
- f. Is there a chemical analysis? Yes No adequate incomplete
- g. Is there analysis of trihalomethanes (THMs) where the water source is a surface water supply or a well under the direct influence of surface water? Yes No
- h. Is the drinking water tested daily with an accurate reading chlorine test kit capable of reading in the range 0 to 3.5 mg/L of free chlorine residual in increments of 0.1mg/L? Yes No unknown
- i. If yes is the test performed in accordance with manufactures directions? Yes No unknown
- j. Is a record of the date, time, name of person performing the test and results of the drinking water sample kept? Yes No

TANK AND PIPING DETAILS

Tank Room

Is there a water tank? Yes No Details:

Where is it located?

Comments: ELECTRICAL ROOM

Is the room in which the water tank is located heated to maintain an optimum temperature of 4°C for stored water?

YES NO

Comments: _____

Are there windows in the add-on that may allow direct sunlight onto the water holding tank? YES

NO

Comments: _____

Are there other heat sources near the tank? YES NO

Comments: _____

Is there waterproof flooring with a sealed base to contain spills? YES NO

Comments: _____

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Overall Tank

What are the tank size and dimensions?

6" Ø x 10 FT L

What material is the tank constructed of? LINED STEEL.

Is tank and associated piping constructed of safe materials (i.e. CSA approved and material that does not affect the taste of the water)? YES NO

Comments: _____

Tank Inlet, Outlet and Lid

Is there adequate access on the tank for cleaning (i.e. min 15" access lid)? YES NO

Does the lid have a tight seal and is it watertight when closed? YES NO

Does the tank have an overflow or high level whistle? YES NO

Is the water tank drain accessible? YES NO NO DRAIN

WATER TANK AND WATER QUALITY CONDITION

Are there signs of staining or biofouling? YES NO

Comments: _____

Is there any sediment or scum in bottom of tank? YES NO

Comments: _____

Is there any odour associated with the water or tank? YES NO

Have there been any bacteriological analyses conducted previously? ~~YES NO~~ UNKNOWN

Does the tank appear that it has been cleaned recently? YES NO

Are the tanks easily assessed for the purpose of cleaning and disinfection? YES NO

8. Conclusions

a. Comments on overall installation:

WATER SYSTEM IS A PROFESSIONAL
INSTALLATION AS DESIGNED.

b. Recommendations:

WATER STORAGE TANK IS NOT AN
ACCEPTABLE STORAGE TANK FOR
DRINKING WATER.
A UV SYSTEM SHOULD BE USED TO
ASSURE BAC + VIRUS FREE WATER.

N - 6718787
E - 0507048



Driller's Report 204100459

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LOG FOR GOLDEN HORN SCHOOL

Location: Golden Horn_Well1 Dunkin Street WHSE

NAD 83 Zone 8 Easting 507041 Northing 6718778 Elevation ASL 1 m.

Location Accuracy: Horizontal 30-100 (topo)
Vertical unknown or unreliable

Purpose of well: Commercial - not fabrication or manufacturing

Permafrost encountered? No

LOG OF OVERBURDEN AND BEDROCK MATERIALS						
Layer	From	To	General Colour	Most Common Material	Secondary Material	General Description
1	0	4.88 m.		GRAVEL, silt cobbles		
2	4.88	125 m.		BEDROCK		

WELL CONSTRUCTION

Well No. 2041004591 Completion date [] Drilling method [] Well type []

Casing: OS Diameter 15.24 mm. Material [] Wall thickness [] mm. Depth to [] m.

Comments []

Surface/Env'l seal: Material [] Diameter [] mm. Depth from [] to [] m. Volume [] cu. m.

Gravel Pack ? Material [] Diameter [] mm. Depth from [] to []

Well Screen Information

OS Diameter	Material	Screen Type	Comments
[]	[]	[]	[]

Screen Sections

Section	From	to	Slot size/perforation diameter
1	[]	[]	[]

WELL DEVELOPMENT AND STATUS

Well ID	Developed by	Wellhead completion	Adapter depth	Static water level	Yield Estimate	Estimate method
2041004591	[]	[]	[] m.	[] m.	[] Lps	[]
Final Status	Unfinished					
No						

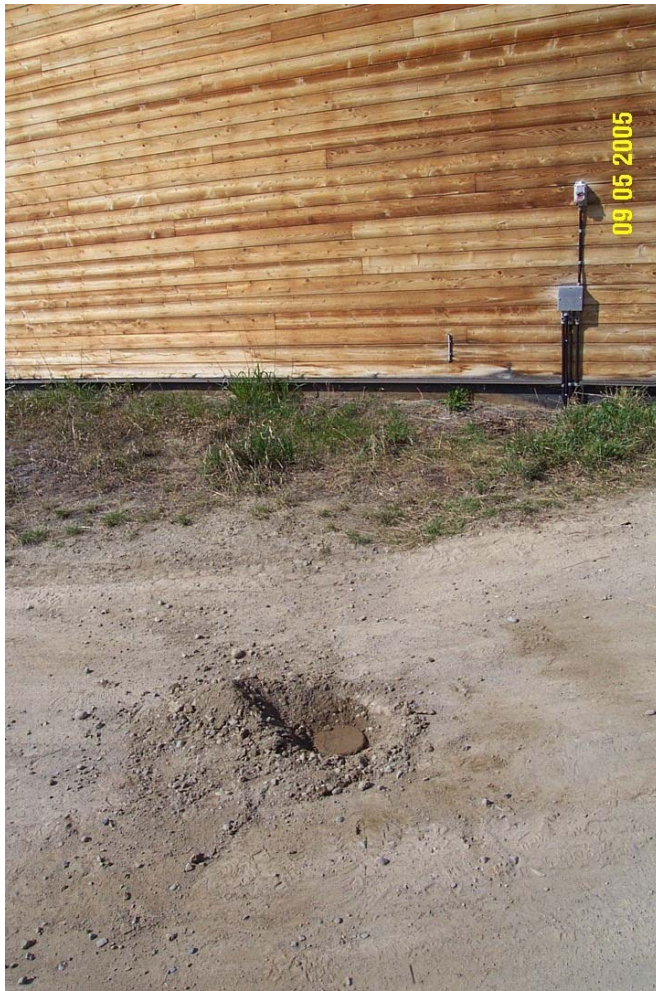


Photo 0082: 1322 Wellhead



Photo 0084: 1322 Water Tank



Photo 0086: 1322 Pressure Tanks and Filter