8.0 BUILDING 1322 GOLDEN HORN SCHOOL

8.1 Description of Existing Water Supply System

Building 1322, the Golden Horn School, is currently serviced by a water delivery system. Delivered water is fed to a large water storage tank that supplies potable water to the school. There is no treatment or disinfection system anywhere on the water system in the school; however, the water is chlorinated at the bulk water delivery site.

There is an abandoned well on the property that is no longer in use due to poor water quality. It is not a part of the existing water system. The abandoned well is shown on Figure 1322-1 in Appendix A8. The coordinates of the wellhead, as measured by a hand held GPS device, were recorded as:

- UTM ZONE 8
- Northing: 6718787
- Easting: 507049

Field notes and a system schematic, shown by Figure 1322-2, are located in Appendix A8.

Anecdotal information suggests that there may also have been another test well drilled at the site, which was unsuccessful. Terry Anderson was not aware of the location of this well at the time of the site visit, and it is unclear whether the well had been properly decommissioned.

Field chemistry readings using a Hach Colorimeter at the time of the assessment indicated that the water from a tap in the staff washroom had a residual chlorine concentration of 0.01 mg/L. According to the proposed Government of Yukon - Public Drinking Water Systems Regulation (YPDWSR), the required concentrations for residual chlorine is 0.2 mg/L or greater throughout the distribution system and at the point of consumption.

PMA retained EBA to complete a follow-up chlorine-monitoring event in March 2006. Katherine Johnston of EBA tested residual and total chlorine concentrations using a Hach Colorimeter at the Golden Horn School on March 28th, 2005. Samples were obtained at three locations in the building. Residual chlorine concentrations were observed to be 0.01 mg/L at the staff washroom (where previously tested) and at the Grade 2 Classroom tap and Computer Room tap. Total chlorine concentrations ranged between 0.02 and 0.03. Test results are summarized on Table 2. Chlorine concentrations during this second

sampling event were still noted to be well below the required 0.2 mg/L at the point of consumption.

8.2 Description of Existing Wastewater Systems

The septic tank for the Golden Horn School is located on the east side of the school, approximately 30 m south from the abandoned well. The septic tank discharges effluent to a field located approximately 50 m east of the tank.

8.3 Water Quality Results

8.3.1 Water Quality Results from Previous Sampling

Bacteriological

Bacteriological sampling of water from the Golden Horn School water system has previously been completed on a number of occasions by EBA for the Property Management Agency as part of a separate contract. EBA was provided access to the YTG database in order to review the results of this previous bacteriological sampling. Seven samples were collected from this system between October 2004 and March 2005 and were tested for total coliform and *E. coli* by Yukon Environmental Health Services using the presence/absence test method. Results are tabulated Table 1322-1 in Appendix A8. As indicated by the data provided in the YTG database, *E. coli* and Total Coliform Bacteria were reported as absent in each of the seven samples for which results were provided.

Detailed Potability Analyses

There were no previous water samples taken from this site for detailed potability testing. The school utilizes delivered water, which is treated and monitored by the contracted company Glacier Water Services. Reportedly, Glacier Water obtains their water from groundwater wells. It was beyond the scope of this assessment to assess this source.

8.3.2 Identification of Additional Analytical Testing Required

Additional analytical for the Golden Horn School that was identified to be included during the water system assessments is detailed below:

- UV absorbance, to determine potential for UV treatment as a disinfection option.
- Measurements in the field for total dissolved solids, conductivity, pH, and temperature, as well as residual chlorine have been completed at the time of sampling for all chlorinated systems.

Additional Analytical Results

A water sample was obtained during the water system assessment on May 10, 2005, and was submitted for analysis to ALS Environmental in Vancouver BC for UV absorbance. These results are summarized in Table 1322-2 in Appendix A8 and the laboratory reports are included in Appendix B.

8.3.3 Indicators of Potential Contamination

There is no risk of local contamination of the water system as Golden Horn School is on water delivery. Analytical for indicators of potential contaminant sources (nitrate, nitrite, chloride) was not completed during this program.

8.4 Potential Contaminant Sources

Potential groundwater contaminant sources from observations during the site investigation are compiled in Table 1322-4 in Appendix A8. Photos of potential contaminant sources are provided in Appendix A8.

A summary of potential contaminant sources within 30 m of the wells is provided below:

- Above ground fuel storage tanks approximately 7 m from wellhead inside the adjacent building.

8.4.1 Spills Records and Contaminated Sites Search Results

The Government of Yukon Environment Branch did not identify any recorded spill events for this site or neigbouring sites.

8.5 Identified Water System Deficiencies and Associated Risk

For the assessment of risk to the Golden Horn School water supply, it is assumed that the groundwater supply is not suitable due to quantity and aesthetic quality issues, and potential risk to the wells is limited to risk to the aquifer, as it is assumed that the school will remain on water delivery.

8.5.1 High and Medium Risk Deficiencies

The current water storage tank used to store the delivered water for the school water supply may require replacement or refurbishment. According to ATTS, the storage tank is made of steel with an epoxy coating and is likely unsuitable for potable water. It is suggested that the tank be inspected when it is accessible and empty during the summer months to determine its suitability. Confined space entry techniques must be used.

Golden Horn School relies on delivered water for its water supply, and although the water is chlorinated, the reading of residual chlorine at the time of inspection and follow-up inspection was only 0.01 mg/L. This is considered to be low for chlorine treated water and the level of chlorine in the water should be higher to ensure that the water is properly disinfected in the event that contaminants are introduced at some point within the distribution system. This likely results from the length of residence time in the storage tank, and the fact that the tank is vented.

8.5.2 Low Risk Deficiencies

- The fill pipe and vent pipe are ABS, which is not considered suitable for domestic water supply.
- There is no screen on the vent, and the vent and fill lines are not labelled.
- Existing water wells that are not properly decommissioned could act as potential pathways for contamination to enter the subsurface and potentially impact on groundwater quality.

8.6 Mitigative Options for Deficiencies

Mitigative options were developed to address the deficiencies identified in the previous section. Deficiencies are categorized by recommended level of priority (with Priority 1 being most critical).

8.6.1 Priority 1

The existing water storage tank may require replacement if it does not meet public health standards. As mentioned previously, it is recommended that an opinion be solicited from a qualified inspector. If required, the replacement tank should be constructed of suitable materials and be designed for use as a potable water storage tank. Removing the existing tank from the current location would be difficult.

The residual chlorine concentration in the potable water system must be increased. This may be achieved through ensuring the delivered free residual chlorine concentration is at least 0.4 mg/L, or by introducing a chlorine injection system within the school supply. Further assessment of the residual chlorine concentrations within the school system is required to properly address the problem.

8.6.2 Priority 2

The ABS piping should be replaced with PVC or other suitable water distribution piping. The vent should be screened to ensure that vermin cannot enter the pipe, and the vent and fill line should be labelled.

8.6.3 Priority 3

According to the proposed Guidelines for Small Public Drinking Water Systems, an owner shall ensure that the decommissioning (abandonment) of a well is done in accordance with the criteria outlined in the *Guidelines for Water Well Construction.* A decision should be made as to whether these wells (one identified, and one not identified), may be used in the future. We understand that it is unlikely that these wells would be used in the future, due to

the fact that they were limited producers and had very high iron content. Consideration should be given to properly decommissioning these wells.

8.7 Cost Estimates for Mitigative Options

Engineering costs for pre-design and preparation of process diagrams and specifications for project tendering for water treatment systems are estimated to be 25% of construction costs. Engineering costs for other mitigative options are estimated to be 20% of construction costs, and would include inspection and completion reporting. The costs for materials and labour (not including engineering) are provided in the sections below. An additional contingency allowance of 20% is suggested for budgetary purposes.

8.7.1 Priority 1

If necessary, replacing the current water storage tank could potentially require removing a wall in order to remove the old storage tank and install the new storage tank. The tank would likely have to be cut into sections to be removed, and would be labour intensive. The new tank itself would cost approximately $**4000**; however the cost to remove the old wall or potentially build a new addition to house the water storage tank is not known at this time.

According to Dayton and Knight, who spoke with a steel tank supplier, refurbishing tanks with an epoxy coating is possible depending on the condition of the tank. They also suggested that the tank manufacturer inspect the tank. Apparently the painting costs about $6 per square foot. This would amount to a cost of approximately **$1500.**

The cost to install a chlorine injection system to ensure adequate residual chlorine concentrations within the system is estimated to be **$5000** for materials and labour. Routine monitoring of residual chlorine concentrations within the system will be required and occasional adjustment of chlorine dosing rates may be required to maintain target residual chlorine concentrations.

8.7.2 Priority 2

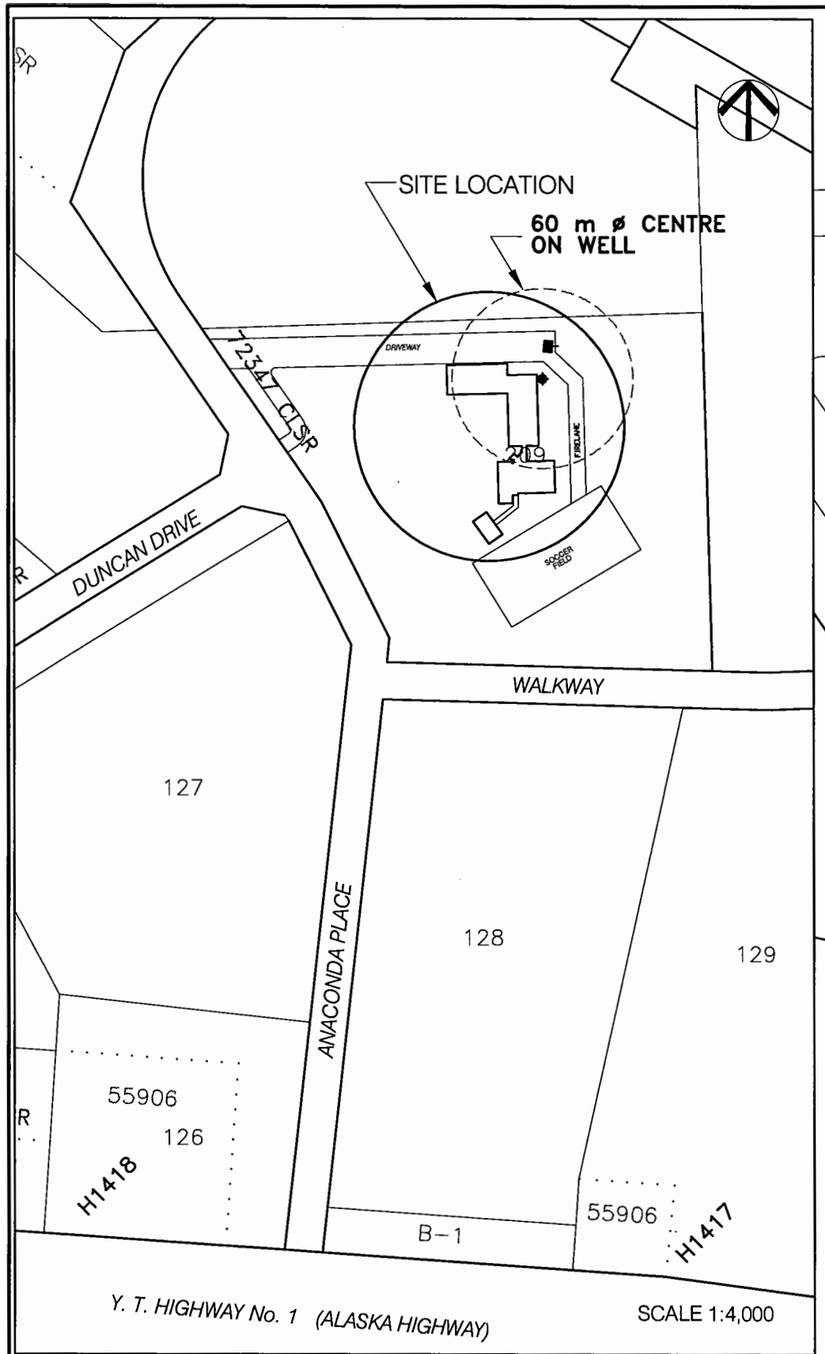
The ABS piping should be replaced with PVC pipe at the same time as the tank replacement, if required. If this work is to be completed separately, it is estimated that it

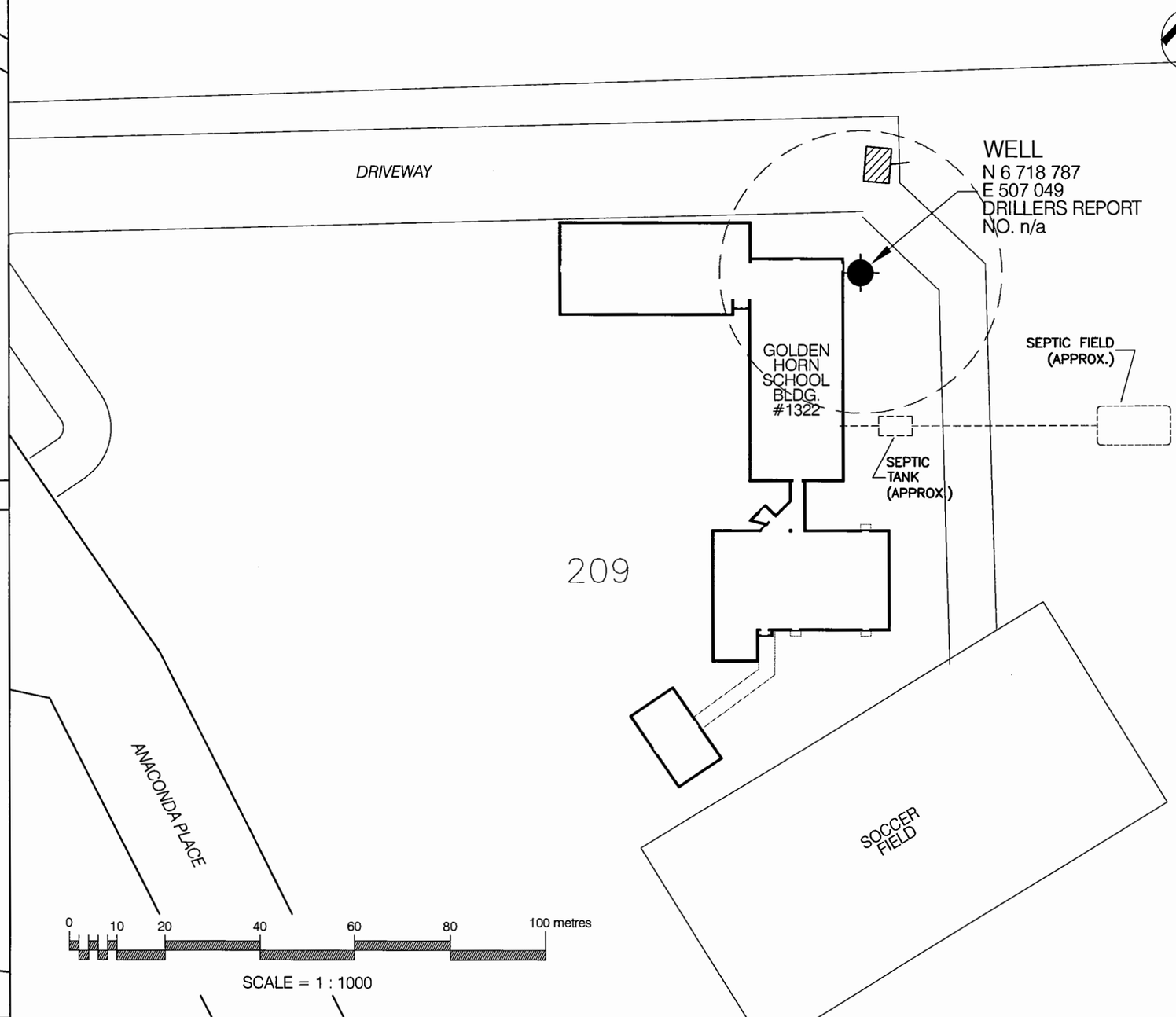
would cost approximately **$500** for labour and materials to remove and replace the piping with PVC.

Labelling and installation of a vermin screen could be completed at the same time as the above work and would cost approximately **$200.**

8.7.3 Priority 3

Proper decommissioning of the existing abandoned wells in accordance with the Guidelines for Water Well Construction would cost in the order of **$1000** per well including labour and materials.





NOTES:
1. UTM COORDINATES OBTAINED WITH A HAND HELD GPS USING NAD83 SYSTEM AND ARE CONSIDERED TO BE ACCURATE TO 10.0 m, APPROXIMATELY.

30 m RADIUS FROM WATER WELL FOR CONSIDERATION OF PROXIMITY TO POTENTIAL CONTAMINANT SOURCES.

No.	DESCRIPTION	DD/MM/YY	APPROVED
0	ISSUED FOR CLIENT REVIEW		XXX

REVISION

EBA Engineering Consultants Ltd.

DESIGNED BY:	R. MARTIN
DRAWN BY:	J. BUYCK
DATE:	JUNE 2005
SCALE:	AS SHOWN
PROJECT No.:	1260002.001
ACAD FILENAME:	GOLDEN HORN SCHOOL - WHITEHORSE REGION

CLIENT: Yukon
Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
WHITEHORSE REGION

GOVERNMENT OF YUKON
HIGHWAYS & PUBLIC WORKS

GOLDEN HORN SCHOOL
BUILDING 1322
SITE LOCATION DIAGRAM
WELL ID: 1322

REVISION ISSUE: 0

DRAWING No.: FIGURE 1322A

Z:\0201Drawings\1260002 Water Assessment YTG\001 - Whitehorse Region\golden horn\1260002 golden horn.dwg, 6/10/2005 11:41:39 AM, \\whi-eb-dc001\WHI201COMMON

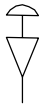
LEGEND


PUMP


PRESSURE GAUGE


GATE VALVE


CHECK VALVE

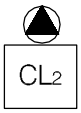

SOLENOID

#2 COMPONENT ID. No.
(SEE TABLE ON FOLLOWING PAGE)

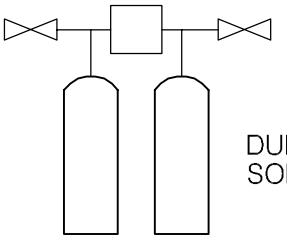
FLOW METER

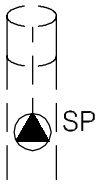
WATER FILTER
(CARTRIDGE TYPE)

PRESSURE TANK

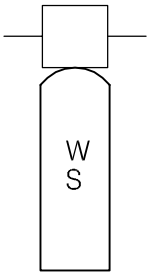


CHLORINE RESERVOIR AND
INJECTION PUMP


DUPLEX WATER
SOFTENER

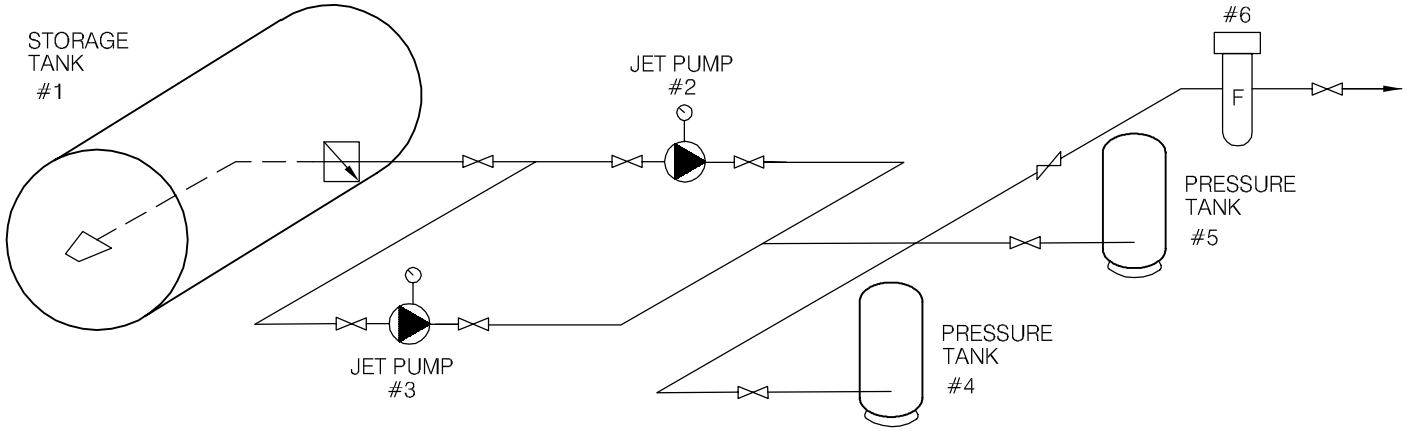


WELL WITH
SUBMERSIBLE PUMP



ACTIVATED
CARBON

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT WHITEHORSE REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			TITLE	SCHEMATIC SYSTEM LEGEND	
DATE APRIL 2006	DWN. JSB	CHKD. RMM	FILE NO. 1260002		DRWG. LEGEND



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

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT WHITEHORSE REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			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

Z:\0201Drawings\1260002 Water Assessment YTG\001 - Whitehorse Region\golden horn\1260002 Golden Horn School 1322 Schematic.dwg, 4/6/2006 9:55:24 AM, Adobe PDF, jbuyck

Whitehorse Region – Golden Horn School
Building # 1322

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	STORAGE TANK					6Ft ø x 10'L
2	JET PUMP #1	MYERS	MJC-100		1596	1¼ 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	1½" BB			1½ x 10"
7	WATER FILTER CART	"	J01DP97			3¾" 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		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 (^{o}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 Permeabilty 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**
Burried 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	***Organic*** and inorganic chemicals.	>>120 m		
Cemetery	***Biological***[1]***,*** inorganic[2] and organic parameters.	>>120 m		
Sewage lagoon	***Biological,*** inorganic and organic parameters.	>>300 m		
Sewage lines, mains and lift stations	***Biological,*** inorganic and organic parameters.	>>30 m		
Septic tanks	***Biological and Inorganic*** parameters.	**29 m**	6718759	507053
Septic fields	***Biological and Inorganic*** parameters	>60 m		
Gas stations	***Organic and Inorganic*** parameters.	800 m		
Undergrounds Fuel Storage Tanks (USTs)	***Organic*** parameters.	>>30 m		
Above ground storage tanks (ASTs)	***Organic*** *parameters.*	**7 m**	6718786	507042
Naturally occurring sources of contamination	***Radionuclides, Bacteria and Viruses from surfacewater sources.***	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

EBA Engineering Consultants Ltd.
Creating and Delivering Better Solutions

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 3 m

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

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 burried 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

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 15 cm 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,

i. Is the well head below grade? describe in detail Burried 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 _____

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:

PART B: EBA Site Inspection

Inspector: BERT ALBISSER 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 ☐ H_2S ☐ Other _____

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: _____

Overall Tank

What are the tank size and dimensions?

6" Ø x 10Ft 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~~ UNKNOW

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

LOG FOR GOLDEN HORN SCHOOL

Driller's Report 204100459

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