8.0 BUILDING 4782 – TESLIN WATER RESERVOIR

8.1 Description of Existing Water system

Building 4782, the Teslin Water Reservoir, is located within the Teslin Grader Station compound. The water reservoir building is equipped with transfer pumps to provide water to the adjacent grader station building, and on demand for truck fill for non-potable use such as vehicle cleaning and road watering. The water reservoir contains a large below grade concrete cistern that receives delivered water from the Village of Teslin community well. Until recently, however, water was piped 2 km from Teslin Lake and the infrastructure for the former piped system remains in place. The location of the reservoir, as well as other details about the surrounding area is provided as Figure 4782-A in Appendix A8. There is no treatment on the water system; however, the delivered water is chlorinated at the source. A schematic detailing the water system is provided as Figure 4782-B in Appendix A8. The coordinates of the wellhead measured by a hand held GPS device were:

- UTM ZONE 8
- Northing: 6673038
- Easting: 625969

8.2 Description of Existing Wastewater Systems

Wastewater is discharged to a septic field located behind the southwest corner of the grader station building greater than 60 m from the cistern.

8.3 Water Quality Results

8.3.1 Water Quality Results from Previous Sampling

There were no previous bacteriological or detailed potability sampling results available for review.

8.3.2 Identification of Additional Analytical Required

A sample was collected during the field program on July 16, 2005 for detailed potability analysis. The results are presented in Table 4782-2, and are summarized below:

- The water supplied by delivery to the cistern appears to be hard and highly mineralized;
- The turbidity was observed to be 2.49 NTU, which exceeds the CDWQG MAC of 1 NTU;
- The total and dissolved arsenic concentrations were below the current CDWQG MAC of 0.025 mg/L, but were greater than the proposed MAC of 0.005 mg/L;
- Field chemistry reported the pH to be 8.63, which is above the CDWQG aesthetic objective of 8.5; and,
- All other parameters analyzed were below the applicable CDWQG criteria for the sample(s) submitted.

8.3.3 Indicators of Potential Contamination

No elevated concentrations of indicator parameters were observed in the sample results reviewed.

8.4 Conceptual Hydrogeology

The Teslin Water Reservoir is supplied by water delivery and there are no wells on the property that were included in this study, therefore, very limited subsurface information was readily available and an assessment of the hydrogeology in the vicinity of this building was not required.

Jacobsen (2003) examined water source, treatment, storage, pumping, and water distribution facilities as well as operations and maintenance procedures for the Village of Teslin community well. The well is very deep, and has several confining low permeability units above it. As such, the aquifer from which this well obtains water is not likely under the direct influence of surface water, however, the well is approximately 60 m from Teslin Lake and may warrant further investigation.

8.5 Potential Contaminant Sources

Potential contaminant sources observed during the site investigation are compiled in field notes provided in Appendix A8. Photos of potential contaminant sources are also provided at the end of this appendix.

Nearby potential sources of contamination relevant were identified as follows:

- An AST is located within 4 m of the cistern;
- Salt storage is located within 8 m of the cistern;
- A salt hopper is located within 40 m of the cistern;
- A used oil tank is located within 50 m of the cistern;
- A rock pit is located within 45 m of the cistern; and,
- A cold mix asphalt pile is located more than 60 m from the cistern.

It is unlikely that any of these potential contaminant source would impact on cistern water quality.

8.5.1 Spills Records and Contaminated Sites Search Results

The sewer lift stations sporadically spill raw sewage as documented in spills reports and a previous study prepared for the Teslin Tlingit Council near the Village of Teslin community well. Lift Station #4, which is close to the Village of Teslin community well, is particularly disconcerting because the tank or eduction system have frequently spilled or leaked. Based on a conceptual understanding of the hydrogeological regime for this area, the Village of Teslin community well is 34 m cross-gradient to lift station #4. Government spills reports confirm that large spills routinely occur at Lift Station #4. The depth to the aquifer (84 m) and thick confining layers provides reasonable protection for the Village of Teslin community well.

8.6 Identified Water System Deficiencies and Associated Risk

8.6.1 High and Medium Risk Deficiencies

- Both the truck fill and cistern fill lines do not have proper caps;
- There is no drain at the lower level of the reservoir;
- There is no regular cistern cleaning schedule;

- This concrete cistern is not suitable for drinking water storage;
- There is no water disinfection system;
- There are no bacteriological results available for review.

In consideration of the condition of the cistern, and the difficulty to rehabilitate it to make it suitable for storage of a drinking water supply, it is advisable to find an alternate source of drinking water for the grader station building.

8.6.2 Low Risk Deficiencies

- The arsenic concentration was above the proposed CDWQG MAC of 0.005 mg/L.

8.7 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).

8.7.1 Priority 1

- Install a suitably designed water storage tank in the grader station and use water delivery for the potable water supply;
- A regular cleaning schedule should be initiated and the residual chlorine should be frequently monitored;
- Disconnect the cistern from domestic supply and use for truck-fill only;
- Regular bacteriological testing should be completed.

8.7.2 Priority 2

There are no Priority 2 mitigative options identified for this site.

8.7.3 Priority 3

If in the future it is considered unfeasible to continue supplying grader station with water from a delivered source, it is possible that a well could be drilled on the property. The new well should be constructed considering the following:

- The well should be equipped with a surface seal to at least 6 m and the casing should be extended above grade (500 mm) within a lockable enclosure that is inaccessible to animals and unauthorized personnel;
- The well must be located at a distance greater than 30 m from any potential source of contamination, including the above ground storage tank and all parts of the septic system; and,
- The water from the new well must meet all CDWQG health based guidelines. If there are any exceedences in the CDWQG health-based guidelines then a treatment system must be designed and installed as necessary. A disinfection system would likely also be recommended.

8.8 Cost Estimates for Mitigative Options

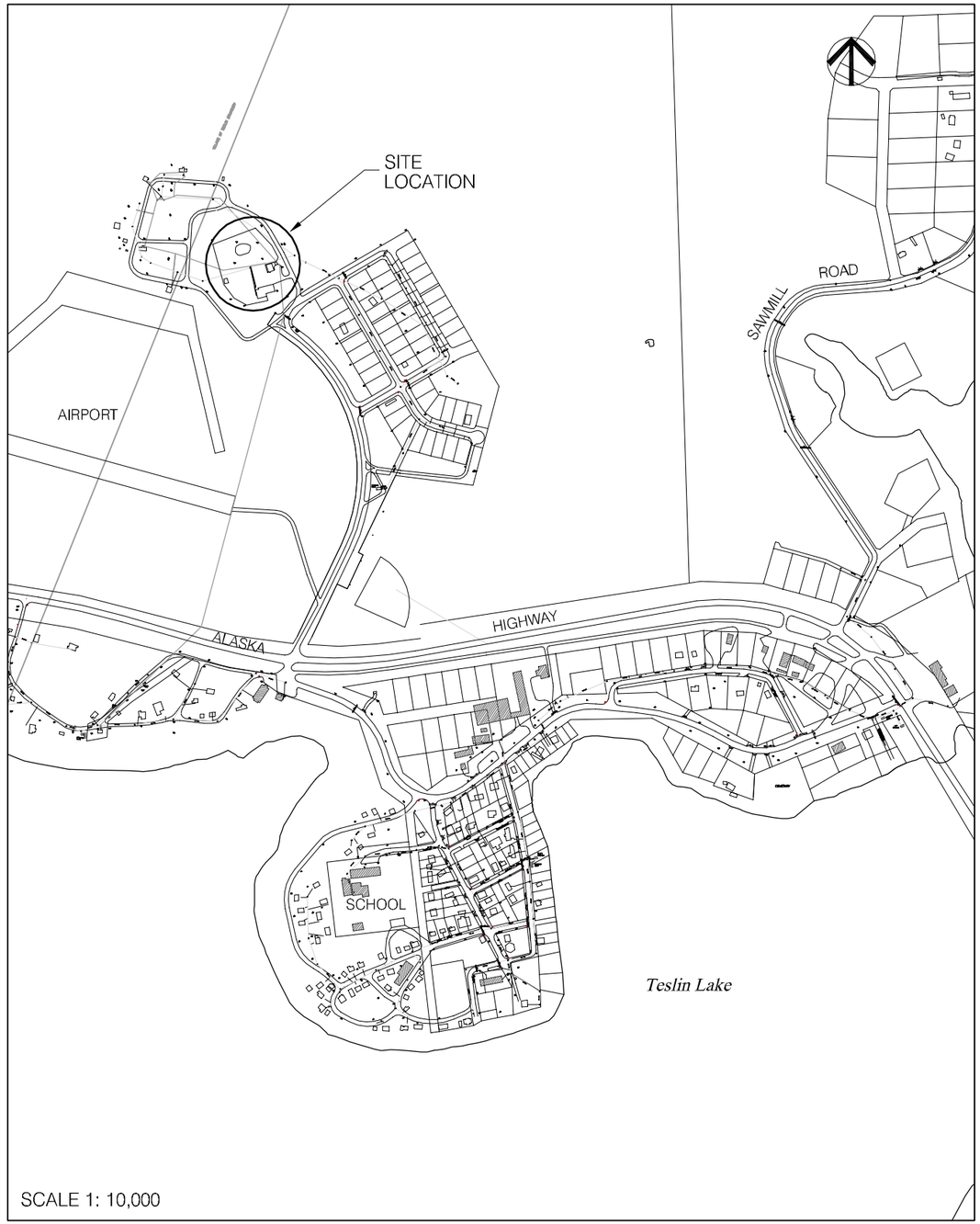
Engineering costs for mitigative options are estimated to be 20% of construction costs, and would include inspection and completion reporting. The costs for materials and labour (not including engineering) are provided in the sections below. An additional contingency allowance of 20% is suggested for budgetary purposes.

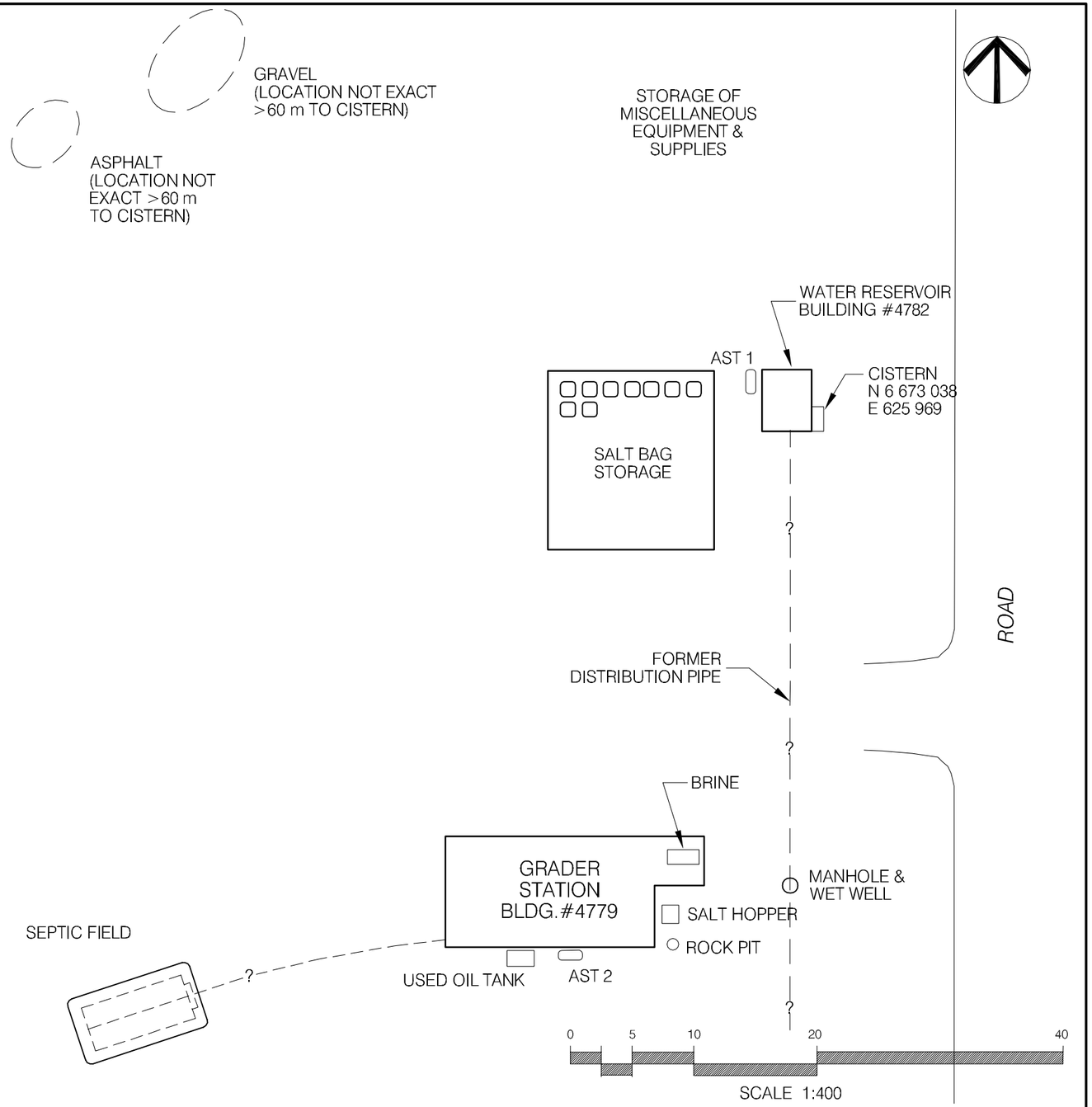
8.8.1 Priority 1

- The cost associated with installing a water storage tank in the grader station maintenance building and disconnecting the domestic supply from the cistern would cost in the order of **$10,000**; and,
- Conducting regular bacteriological testing should be conducted under normal operation and maintenance budget.

8.8.2 Priority 3

- The cost associated with drilling a new well, assuming 40 m of overburden, including drilling, testing, and connecting the new well, would cost in the order of **$35,000**.





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	DD/MM/YY	XXX

REVISION

EBA Engineering Consultants Ltd.

DESIGNED BY:	R. MARTIN
DRAWN BY:	J. BUYCK
DATE:	JULY 2005
SCALE:	AS SHOWN
PROJECT No.:	1260002.002
ACAD FILENAME:	002-EASTERN REGION

CLIENT: Yukon
Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
EASTERN REGION

GOVERNMENT OF YUKON
HIGHWAYS & PUBLIC WORKS

TESLIN WATER RESERVOIR
BUILDING # 4782
SITE LOCATION DIAGRAM
WELL ID: 4782

REVISION ISSUE 0

FIGURE No. FIGURE 4782-A

Z:\0201Drawings\1260002 Water Assessment YTG\002 - Eastern Region\teslin\1260002 Grader Station_4782.dwg, 7/20/2005 12:35:04 PM, Adobe PDF

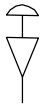
LEGEND


PUMP


PRESSURE GAUGE


GATE VALVE


CHECK VALVE

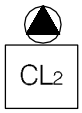

SOLENOID

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

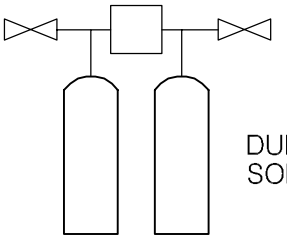
FLOW METER

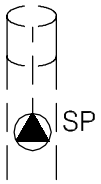
WATER FILTER
(CARTRIDGE TYPE)

PRESSURE TANK

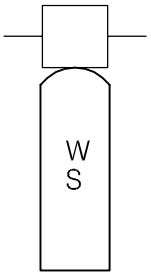


CHLORINE RESERVOIR AND
INJECTION PUMP


DUPLEX WATER
SOFTENER

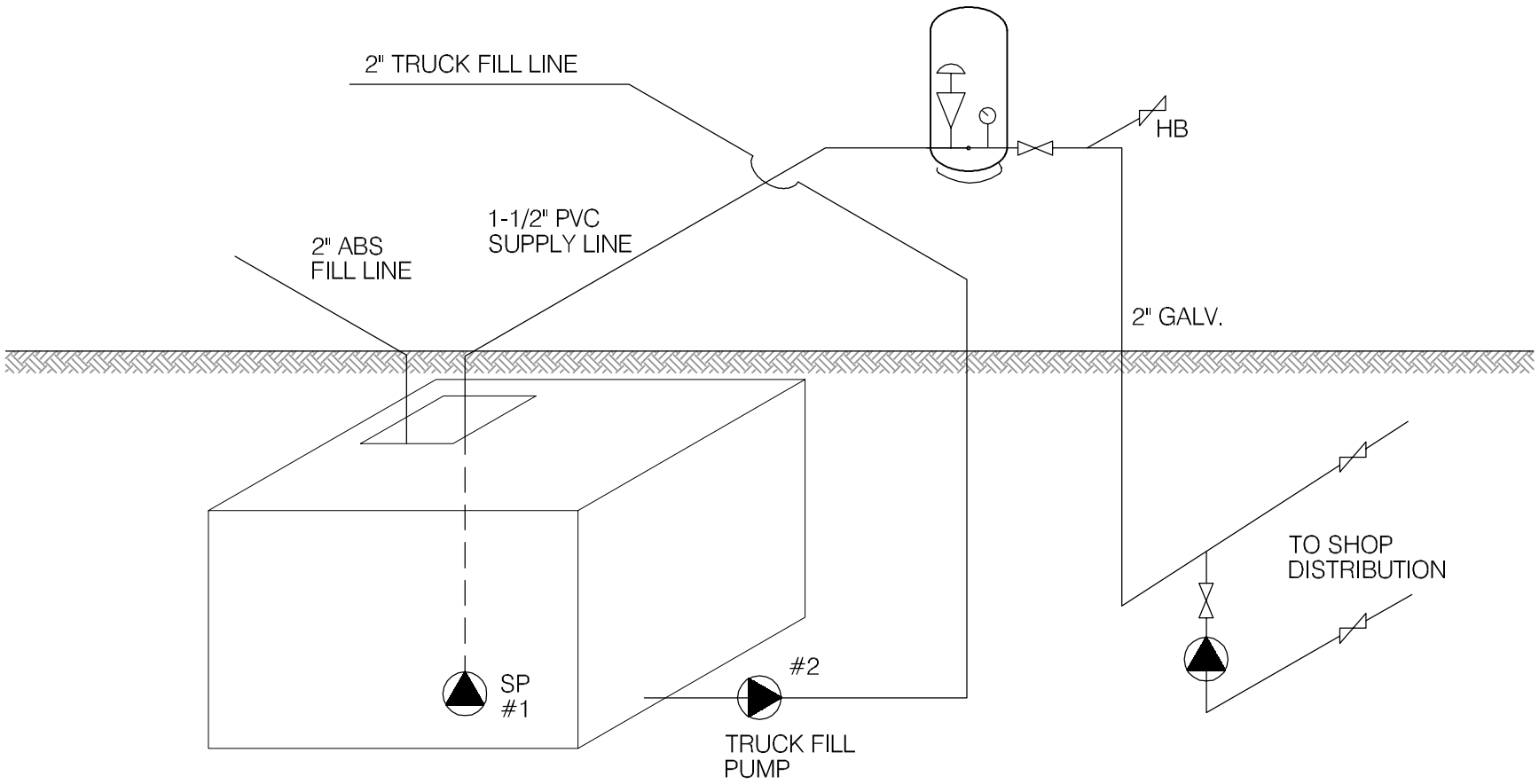


WELL WITH
SUBMERSIBLE PUMP



ACTIVATED
CARBON

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT EASTERN 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 EASTERN REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			TITLE	WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: 4782 TESLIN GRADER STATION	
DATE JULY 2005	DWN. JSB	CHKD. RMM	FILE NO. 1260002.002		DWG.: FIGURE 4782-B

Z:\0201Drawings\1260002 Water Assessment YTG\002 - Eastern Region\teslin\Schematics\1260002 Teslin Grader Station 4782 Schematic.dwg, 7/20/2005 12:16:43 PM, Adobe PDF

Eastern Region – Water Reservoir
Building # 4782

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	Sub. Pump	N/A	N/A			4" - 1HP
2	Truck Fill Pump	Monarch	6MF-Z		685	
3	Pressure Tank	Well Rite	WR240R			307 L
4	Pressure Switch	SQ. D	FSG-2			2" 1/4 Flat
5	Pressure Gauge	Marsh	0-100 PSI			2"
6						
7						
8						
9						
10						

TABLE 4782- 1: SUMMARY OF BACTERIOLOGICAL RESULTS

Building #	Building Name	Number of Sampling Events	Time Period over which Sampling was Done	Any Positive Total Coliform Results? (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?
4782	Water Reservoir	NO BACTERIOLOGICAL RESULTS ARE AVAILABLE FOR THIS SITE						

Table 4782-2: Water Quality Results

SOURCE:	Building 4782 - Water Reservoir		GCDWQ Criteria		
Location/ Resident	Teslin				
Address					
Treatment	No				
Disinfection	No				
Source of Water	Water Delivery				
Purpose of Sampling	Baseline	Additional Sampling			
Sample Location		Washroom Tap			
Date Sampled		16-Jun-05	**Lower**	**Upper Limit**	
Physical Tests *(ALS)*			**AO**	**MAC**	**AO**
Colour (CU)		6.1			15
Conductivity (uS/cm)		582			
Total Dissolved Solids		362			500
Hardness CaCO3		251	AO >200 = poor, > 500 unacceptable[A]		
pH		8.31	6.5		8.5
Turbidity (NTU)		**2.49**		1	5
Dissolved Anions *(ALS)*					
Alkalinity-Total CaCO3		238			
Chloride Cl		4.61			250
Fluoride F		0.17		1.5	
Sulphate SO4		105			500
Nitrate Nitrogen N		<0.10		10	
Nitrite Nitrogen N		<0.10		1	
Ammonia Nitrogen N		0.036			
Total Metals *(ALS)*					
Aluminum T-Al		<0.010		0.1	
Antimony T-Sb		<0.00050		0.006	
Arsenic T-As		*0.0162*		0.025	
Barium T-Ba		0.03		1	
Boron T-B		<0.10		5	
Cadmium T-Cd		<0.00020		0.005	
Calcium T-Ca		41.7			
Chromium T-Cr		<0.0020		0.05	
Copper T-Cu		0.0218		1	
Iron T-Fe		0.295			0.3
Lead T-Pb		<0.0010		0.01	
Magnesium T-Mg		35.8			
Manganese T-Mn		0.013			0.05
Mercury T-Hg		<0.00020		0.001	
Potassium T-K		1.8			
Selenium T-Se		<0.0010		0.01	
Sodium T-Na		39.1			200
Uranium T-U		0.00017		0.02	
Zinc T-Zn		0.065			5
Organic Parameters					
Total Organic Carbon C		2.19			
Field Chemistry (EBA)					
pH		**8.63**	6.5		8.5
TDS (ppm)		291			500
EC (uS/cm)		586			
Temperature (°C)		7.1			

Notes:

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

Italics and underline indicates exceedence of proposed MAC (ie. arsenic)

Bold with Yellow highlighting indicates exceedence of CDWQG Aesthetic Objective (AO)

Bold Underline with Yellow highlighting 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 4782-3: Summary of Well Assessment Results
SMALL PUBLIC DRINKING WATER SYSTEMS

Well Identification			GPS Coordinates		
Building #	**Building Name**	**Location**	**Northing (+/- 10 m)**	**Easting (+/- 10 m)**	**Grade Elevation (+/- 10 m)**
4782	**Water Reservoir**	**Teslin**	6673038	625969	704

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)**
No well, system is on water delivery							

Potential Contaminant Sources					
Distance from well to nearest point of septic field (m)	**Distance from well to nearest building (m)**	**Distance to surface water body (m)**	**AST present on property?**	**Distance from well to AST (m)**	**Other potential sources of contamination observed on property, and distance to well**
Greater than 60 m	Inside water resevoir building	Greater than 60 m	AST 1	4	Salt storage at 8 m
					Salt Hopper at 40 m
					Used Oil Tank at 50 m
			AST2	50	Rock Pit at 45 m
					Asphalt Pile at over 60 m

Well Construction Details					
Wellhead Above ground (m)	**Well Cap**	**Well Screen**	**Surface Seal**	**Apron Grading**	**Comments**
N/A	N/A	N/A	N/A	N/A	

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 June 16, 2005

WELL ID #	Owner	Location Description
4782	YTG	Water Reservoir/Teslin Grader Station

1. Well Location and Potential Contaminant Sources

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

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

c. GPS location: N: 6673038 E: 625969 elev. 704m ± 8m

d Is there electric power? ☒ Yes ☐ No

e Is there outside water access? ☐ Yes ☒ No

f. Does the well system have:

☐ 15 or more service connections to a piped distribution system ? If so how many_____

☐ 5 or more delivery sites on a trucked distribution system? If so how many_____

g. Nearest building, specify Located inside the water reservoir building

h. Distance from well to building _____

i. If there is an effluent disposal field, is its location known? ☒ Yes ☐ No

j. Distance from ~~well~~ reservoir to nearest point of known field: >60m

k. Well location relative to field: ☐ upslope ☐ downslope ☒ lateral

l. 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

---

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

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

o. 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
Inside building equiped w/ padlock on the door

p. Is well site subject to flooding? ☒ Yes ☐ No

q. Is the well site well drained? ☒ Yes ☐ No
The area around the enclosure is graded away from well

r. Is there a buried fuel tank on the property? ☐ Yes ☒ No unlikely

If yes, is it ☐ in use ☐ abandoned

Is the location known? ☐ Yes ☐ No

Distance from the well to known buried tank _____

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

☐ Yes ☐ No Describe Proximity with respect to the water reservoir

If yes, specify the source: ☐ dump ☐ sewage lagoon ☐ cemetery ☐ other
Asphalt pile >60m

2- N: 6672984 E: 625964 elv 710m ±8m →

Potential Source 1: AST1, 2 ; Distance from well to Potential Source 1: 4m

Potential Source 2: Salt Storage ; Distance from well to Potential Source 2: 8m

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

Potential Source 4: Used oil tank ; Distance from well to Potential Source 4: _____
Rock Pit → Possibly @ ~45m N:6672994 E:625978

t. Are there ~~other~~ wells on this property? ☐ Yes ☒ No unlikely

How many? _____ ☐ in use ☐ abandoned ☐ require proper sealing

2. Well and Wellhead information:

a. When was ~~well~~ reservoir installed? Year Unknown Month _____

b. Type: ☐ drilled ☐ dug ☐ sand point ☐ other N/A

c. Is there a drillers log for the well: ☐ Yes ☐ No N/A

d. Is there a surface seal to 6 m ☐ Yes ☐ No ☐ unknown ☐ unlikely N/A

e. Surface casing: ☐ Yes Diameter _____ ☐ No N/A

f. Well casing: Diameter _____ Material: ☐ steel ☐ plastic ☐ concrete N/A

g. Depth of well: _____ ☐ measured (if possible) ☐ reported ☐ from log N/A

h. Static water level below ground: _____

☐ measured (if possible) ☐ reported ☐ from log ☐ flowing

i. (If granular) Is the well completed: ☐ open end casing ☐ with a well screen N/A

☐ with slotted pipe ☐ unknown other _____

j. (If bedrock) Does the well have a liner? ☐ yes ☐ No ☐ steel ☐ plastic N/A

k. If there is a well screen: length _____ slot size(s) _____ N/A
Location of screen: from _____ to _____ from log reported

l. Is there a sump below the screen? ☐ Yes ☐ No N/A

m. Is the ~~well head~~ reservoir: ☐ in pumphouse ☐ in pit ☐ pitless adaptor ☒ in a building
The reservoir is made of concrete.
The enclosure is made of timbers, but is made of concrete ~40 cm
☐ in a wooden enclosure other, describe above grade and below

n. If the well head is located in a wooden enclosure,

i. Is the well head below grade? describe in detail The water reservoir is made of concrete and installed below grade

ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? ☐ Yes ☐ No
The basement of the buiding has been flooded: ~ 5cm of water

iii. Is the wellhead enclosed by fiberglass insulations? ☐ Yes ☐ No

iv. Any evidence of rodents? Specify There was no evidence of rodents inside building

v. Does the well casing have a proper seal cap? ☐ Yes ☐ No
N/A

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
N/A

b. Does water level and/or well capacity show seasonal fluctuation? ☐ Yes ☐ No
N/A

5. Pump Installation:

a. Is the ~~well~~ reservoir 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

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
Unknown

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

If yes, describe: There is a heater inside the reservoir building

l. Comments on pump installation: Pump is submersed in reservoir

6. Conclusions

a. Comments on overall installation:

This water system includes a concrete water reservoir 2.5m x 5m x 3m located inside water reservoir building. Water is from a delivered source, up until recently the water had been piped from Teslin Lake.

b.Recommendations: _____

PART B: EBA Site Inspection

Inspector: BERT ALBISSER Date JUNE 16/05

WELL ID #	Owner	Location Description
4782	YTG	TESLIN WATER RESERVOIR

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 N/A

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: OUT BUILDING

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?
5' W x 16' L x 10' H 5000 GALLON APPROX

What material is the tank constructed of? CONCRETE

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)

WATER TANK AND WATER QUALITY CONDITION

Are there signs of staining or biofouling? YES NO
Comments: IRON STAINING

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 ?

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:

THIS INSTALLATION DOES NOT MEET DRINKING WATER SYSTEM STANDARDS. THE CYSTERN ACCESS IS NOT SECURED WITH A LID OF ANY KIND. THERE IS A STRONG DIESEL FUEL ODOUR IN THIS BUILDING. BOTH THE TRUCK FILL LINE AND THE CYSTERN FILL LINE ARE EXPOSED WITHOUT A PROPER CAP. THERE IS NO DRAIN OR SUMP PUMP AT THE LOWER LEVEL.

b. Recommendations:

CLEAN THE CONCRETE CYSTERN. INSTALL PROPERLY SEALED LID. REPIPE THE SUB. PUMP SYSTEM WITH PROPER SEALED WALL SLEEVES. INSTALL PROPERLY SEALED FILL LINE TO THE CYSTERN. SUPERCHLORINATE THE COMPLETE PIPING SYSTEM INSTITUTE PROPER CHLORINE RESIDUAL TESTING.

Photo 0218: 4782 Water Reservoir building

Photo 0220: 4782 Cistern inside Water Reservoir building

Photo 0222: 4782 Teslin Grader Station (back) and Water Reservoir building (right)

Photo 0221: 4782 Basement of Water Reservoir building. Water pump (centre), cistern behind left wall, note flooding on the floor.

Photo 0009: 4782 Entrance to cistern

Photo 0009: 4782 Pressure tank