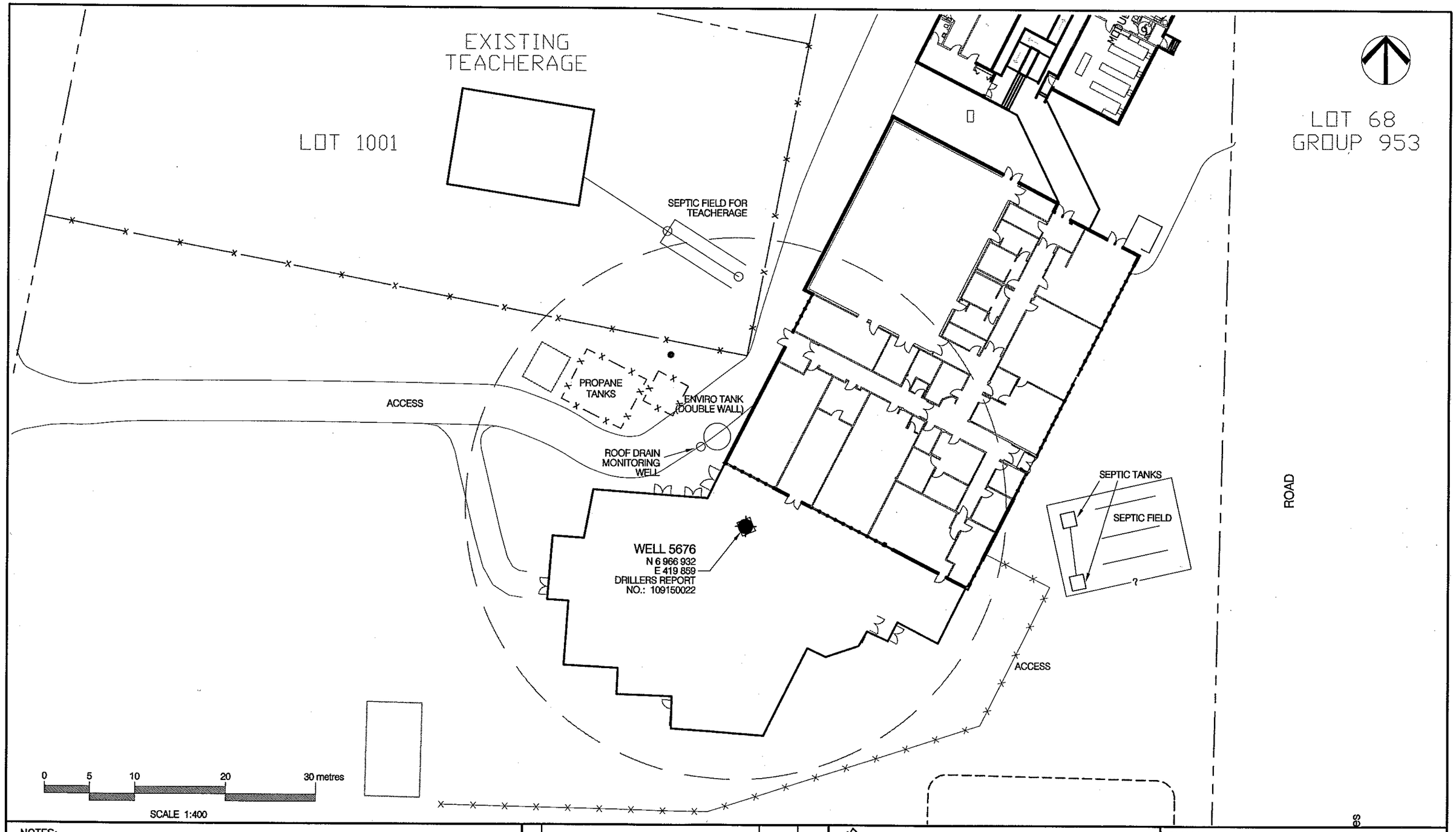


NOTES:

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	DATE	APPROVED
0	ISSUED FOR CLIENT REVIEW	DD/MM/YY	XXX

REVISION

EBA Engineering Consultants Ltd.

DESIGNED BY:	R. MARTIN
DRAWN BY:	J. BUYCK
DATE:	SEPT. 2005
SCALE:	AS SHOWN
PROJECT No.:	1260002.004
ACAD FILENAME:	004-NORTHERN REGION

CLIENT: Yukon
Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
NORTHERN REGION

GOVERNMENT OF YUKON
HIGHWAYS & PUBLIC WORKS

PELLY CROSSING SCHOOL
BUILDING # 5676
SITE LOCATION DIAGRAM
WELL ID: 5676

REVISION ISSUE: 0

FIGURE No.: FIGURE 5676-A

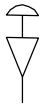
LEGEND


PUMP


PRESSURE GAUGE


GATE VALVE


CHECK VALVE

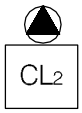

SOLENOID

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

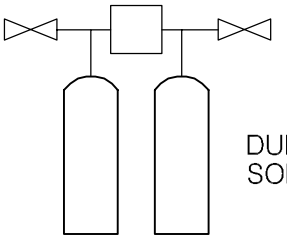
FLOW METER

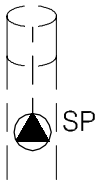
WATER FILTER
(CARTRIDGE TYPE)

PRESSURE TANK

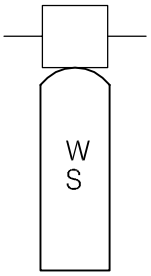


CHLORINE RESERVOIR AND
INJECTION PUMP


DUPLEX WATER
SOFTENER

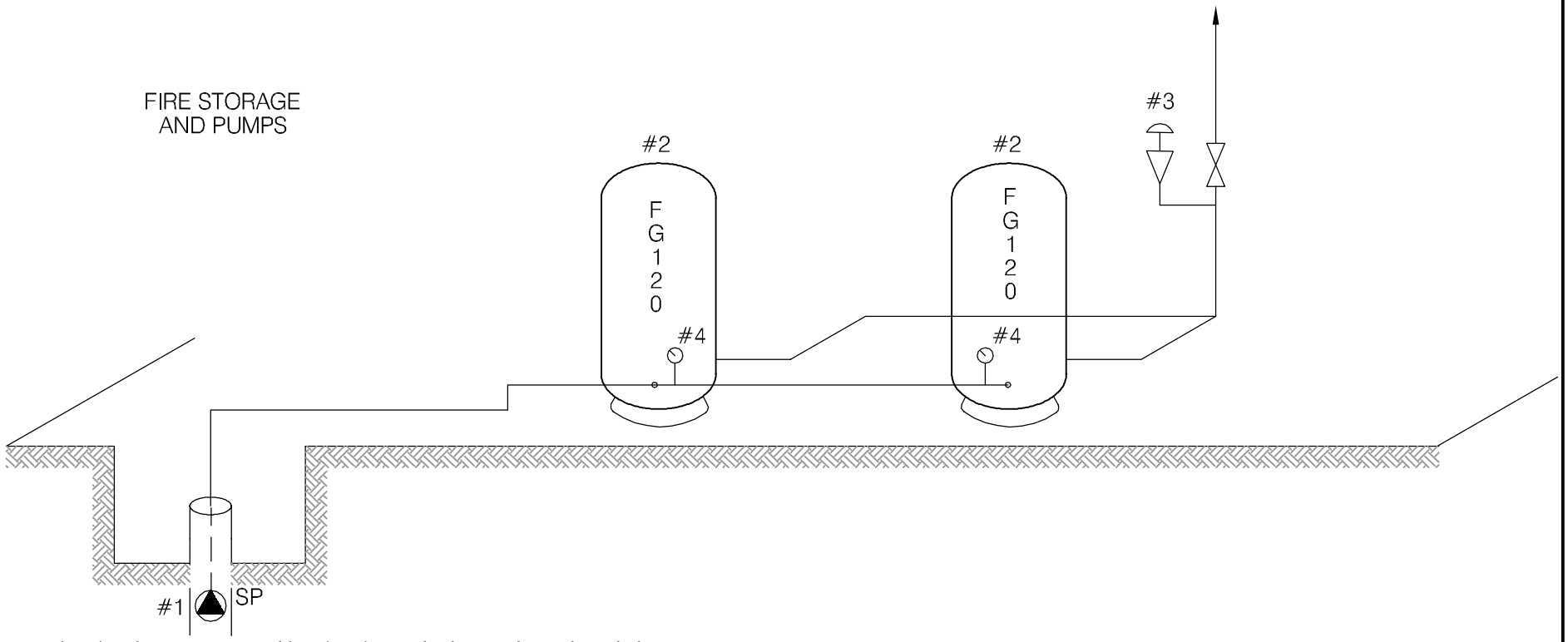


WELL WITH
SUBMERSIBLE PUMP



ACTIVATED
CARBON

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT WESTERN 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 AND SERVICES LTD.

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT NORTHERN REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			TITLE	WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: 5676 ELIZA VAN BIBBER SCHOOL - PELLY CROSSING, YT.	
DATE SEPT. 2005	DWN. JSB	CHKD. RMM	FILE NO. 1260002.004		DWG.: FIGURE 5676-B

Z:\0201Drawings\1260002 Water Assessment YTG\004 - Northern Region\pelly\1260002004 Pelly School_5676B Schematic.dwg, 4/5/2006 3:04:17 PM, Adobe PDF, jbuyck

Northern Region – Eliza Van Bibber School
Building # 5676

Photo 102-203
102-204

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	Sub Pump	N/A	PNLA	CCT 32-34		
2	Pressure Tank	Sta-Charge	FG-120 X2			
3	Pressure Switch	Square D	GSG-2			5HP - 1/4" FIPT
4	Pressure Gauge	Winters	0-160			4" - 1/4 FIPT
5						
6						
7						
8						
9						
10						

TABLE 5676 - 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?
5676	Eliza Van Bibber School	10	Jun-04 to Jun-05	yes	1/10	no	9-Jun-05	yes

Table 5676 - 2: Water Quality Results

SOURCE:	Building 5676 - Eliza Van Bibber School			GCDWQ Criteria		
Location/ Resident	Pelly Crossing					
Address						
Treatment	None					
Disinfection	None					
Source of Water	On-site well					
Purpose of Sampling	Base Line	Base Line	Additional Sampling			
Sample Location						
Date Sampled	29-Sep-04	8-Jun-05	23-Aug-05	Lower	Upper Limit	
Physical Tests *(ALS)*				**AO**	**MAC**	**AO**
Colour (CU)	12	7.1				15
Conductivity (uS/cm)		402				
Total Dissolved Solids	208	226				500
Hardness CaCO3	191	177		AO >200 = poor, > 500 unacceptable[A]		
pH	8.1	8.17		6.5		8.5
Turbidity (NTU)	**1.0**	0.33			1	5
UV Absorbance			0.0800			
% UV Transmittance			96.2			
Dissolved Anions *(ALS)*						
Alkalinity-Total CaCO3	179	176				
Chloride Cl	0.9	0.61				250
Fluoride F	0.1	0.114			1.5	
Silicate SiO4						
Sulphate SO4	26.4	33.5				500
Nitrate Nitrogen N	<0.1	<0.10			10	
Nitrite Nitrogen N	<0.05	<0.10			1	
Ammonia Nitrogen N						
Total Phosphate PO4						
Total Metals *(ALS)*						
Aluminum T-Al	<0.005	<0.010			0.1	
Antimony T-Sb	<0.0002	<0.00050			0.006	
Arsenic T-As	0.0013	0.00119			0.025	
Barium T-Ba	0.124	0.108			1	
Boron T-B	0.004	<0.10			5	
Cadmium T-Cd	<0.00001	<0.00020			0.005	
Calcium T-Ca		50.5				
Chromium T-Cr	0.001	<0.0020			0.05	
Copper T-Cu		0.001			1	
Iron T-Fe	**0.35**	0.198				0.3
Lead T-Pb	<0.0001	0.0017			0.01	
Magnesium T-Mg		12.3				
Manganese T-Mn	**0.611**	**0.535**	**0.595**			0.05
Mercury T-Hg		<0.00020			0.001	
Potassium T-K		2.29				
Selenium T-Se		<0.0010			0.01	
Sodium T-Na	4.2	4.7				200
Uranium T-U	0.0007	0.00066			0.02	
Vanadium T-V						
Zinc T-Zn	0.002	<0.050				5
Dissolved Metals						
Manganese D-Mn			**0.588**			0.05
Organic Parameters						
Tannin and Lignin			0.29			
Total Organic Carbon C			4.02			
Extractable Hydrocarbons						
EPH10-19			<0.30			
EPH19-32			<1.0			
Field Chemistry (EBA)						
pH			7.98	6.5		8.5
TDS (ppm)			175			500
EC (uS/cm)			354			
Temperature (°C)			10.4			
Free Available Chlorine						

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)

EBA Engineering Consultants Ltd.
Creating and Delivering Better Solutions

SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: KSJ/RMM Date August 23/05

WELL ID #	Owner	Location Description
5676	YTG	Eliza Van Bibber School

1. Well Location and Potential Contaminant Sources

a. General location of well: (Community, Subdivision, etc.)
Pelly Crossing 462 Klondike Highway

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

c. GPS location: DB E 419857 N 6966932 elev 478m
GPS Waypoint 5676

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 No

☐ 5 or more delivery sites on a trucked distribution system? If so how many No

g. Nearest building, specify Inside building

h. Distance from well to building Inside building

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

j. Distance from well to nearest point of known field: <30m (25m)

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

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

q. Is the well site well drained? ☒ Yes ☐ No

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 _____

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

Potential Source 1: AST #1 ; Distance from well to Potential Source 1: 5m. (inside)

Potential Source 2: AST #2 ; Distance from well to Potential Source 2: 8m. 15000L double wall enviro tank.

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

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

t. 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 1982 Month August 19

b. Type: ☒ drilled ☐ dug ☐ sand point ☐ other _____

c. Is there a drillers log for the well: ☒ Yes ☐ No MSD

d. Is there a surface seal to 6 m ☐ Yes ☐ No ☒ unknown ☐ unlikely

e. Surface casing: ☐ Yes Diameter _____ ☒ No

f. Well casing: Diameter 6" Material: ☒ steel ☐ plastic ☐ concrete

g. Depth of well: 50' ☐ measured (if possible) ☐ reported ☐ from log

h. Static water level below ground: 22'

☐ 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) 15
Location of screen: from ? to _____ from log reported

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

m. Is the well head: ☐ in pumphouse ☐ in pit ☐ pitless adaptor ☒ in a building

☐ in a wooden enclosure other, describe basement of school.

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

i. Is the well head below grade? describe in detail Yes - see diagram.

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 No

v. Does the well casing have a proper seal cap? ☒ Yes ☐ No

If no, describe condition Split gasket cap.

3. Water Supplying This Well:

a. By definition is the water from a surface water source or under the direct influence of surface water?

no surface seal ☒ Yes ☐ No ☐ farther investigation required.

If yes is there treatment or disinfection ☐ 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 w Pelly River

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 PNEA Model ?

horsepower 1½ - 1 capacity voltage

d. Date installed: ? By: _____

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

f. Drop pipe for submersible pump: ☒ steel ☐ plastic

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

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

If yes, describe: inside building.

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

b. Recommendations:

PART B: EBA Site Inspection

Inspector: BERT ALBISSER Date AUG. 23/05

WELL ID #	Owner	Location Description
5676	YTG	SCHOOL, PELLY CROSSING.

6. **Water Treatment**

a. Is well water treated? ☐ Yes ☑ No; Type of treatment:

☐ 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: Pressure Tanks

Where is it located?
Comments: Boiler 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?

_____

What material is the tank constructed of? _____

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:_____

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 IS A PROFESSIONAL INSTALLATION

b. Recommendations:

INSTALL PROPORTIONAL CHLORINATION SYSTEM.

Field Report (109150022)

MIDNIGHT SUN DRILLING CO. LTD. WHITEHORSE Y.T.
PH. 633-3070
P.O. BOX 4391
WHITEHORSE, YUKON

Started.. Aug..19.....19.82

Completed. Aug.19.....19.82

NAME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
YTG? Highways original Pelly School	W/W	PELLY

FORMATION LOG FROM	TO	FORMATION	DESCRIPTION OF WORK	TIME DATE	FROM	TO	HOURS
			MOVE Move to School - SETUP	Aug 19	1:30	2:00	
0'	50'	Sand & Gravel	"	"	2:00	3:30	
			Pull out - SET SCREEN	"	3:30	4:00	
			DEVELOPE	"	4:00	5:30	
			Pull out - Load - WELD ON CAP	"	5:30	6:00	
			WASH TRUCKS - (Thought we were done)	"	6:00	7:00	5½
			DEVELOPED To Aprox 35 G.P.M.				

Rd. of Casing & Pipe Size	Type	Size	Type
Feet	Inch	Feet	Inch

Remarks:

46' - 219 WALL 6" Casing
1 - 6" Drive Shoe
1 - 15 slot screen
1 - Lead Packer
1 - 5 7/8 Bit PW Bottom
1 - 2' Riser Pipe

Static Level	22'	Total Rig Time	hrs.
Ground Level		Total Standby	hrs.
Top Of Casing		Drilling Mud	sacks

SIGNATURES

MIDNIGHT SUN..... Jeff .....
TITLE..... Driller .....

CLIENT.....
TITLE.....

Environment Canada Environnement Canada

Enforcement and Emergencies Section
91782 Alaska Highway, Whitehorse, YT Y1A 5B7
PH: 867.667.3400 FAX: 867.667.7962

Spill Report Information

Spill #	8621
Jurisdiction	Yukon
Community	Pelly Crossing
Address	
Highway	
Milepost	
Feature	Pelly Crossing
Location and Cause	overturned home heating fuel storage tank - garbage truck backed into supporting stand
Latitude	62.819543
Longitude	-136.569408
Incident Date	12/31/1986 2:00:00 PM
Lead Agency	Environment Canada - Environmental Protection Service
Other Agency	RCMP
Company(s)	Selkirk Indian Band
Amount	1890
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quanitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Furnace Oil
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	fuel spilled onto frozen ground and snow/ice cover - fuel was flushed with water and dispersed over a wider area - band advised to remove cont snow

Environment Canada Environnement Canada

Enforcement and Emergencies Section
91782 Alaska Highway, Whitehorse, YT Y1A 5B7
PH: 867.667.3400 FAX: 867.667.7962

Spill Report Information

Spill #	9840
Jurisdiction	Yukon
Community	Pelly Crossing
Address	
Highway	
Milepost	
Feature	Pelly Crossing
Location and Cause	Pelly Crossing School - valve opened intentionally on heating fuel tank - tank drained
Latitude	62.8181
Longitude	-136.5665
Incident Date	9/11/1998
Lead Agency	Yukon Government - Renewable Resources
Other Agency	
Company(s)	
Amount	
Units	
Quantity	Unknown
Release Description	
Additional Quanitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Furnace Oil
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	spill to ground - near community well - soil excavated - EC suggested taking contaminated soil to dump and spreading out on tarps - no further information on file

Photo 203: 5676 Wellhead.

Photo 204: 5676 Water System. (pump controls and pressure tanks)

Photo 400: 5676 Eliza Van Bibber School's septic system.

Photo 399: 5676 Monitoring well for rock pit drain.