7.0 BUILDING M0133: BEAVER CREEK RCMP RESIDENCE

7.1 Description of Existing Water Supply System

Building M0133, the Beaver Creek RCMP Residence, is currently served by a water supply system that delivers water from a 37.4 m deep well. The well is located in an enclosure off from basement of the residence. The well location and other details about the surrounding area are provided in Figure M0133-A in Appendix A7. The coordinates of the wellhead, as measured by a handheld GPS device, were recorded as:

- UTM ZONE 7
- Northing: 6917199
- Easting: 506150

The water system is equipped with an in-line filter and a water softener, however, at the time of the assessment, the softener was being bypassed and was not functioning. The system is not equipped with a disinfection system. A schematic detailing the well supply system is provided as Figure M0133-B in Appendix A7.

There is an abandoned well located in the same enclosure as the well that is currently in use. The abandoned well was not equipped with a proper cap and was open.

7.2 Description of Existing Wastewater Systems

The septic tank that serves the residence is located approximately 20 m west of the well, and the septic effluent discharge field is located approximately 40 m down slope from the well. Although the effluent field is downslope from the well, conceptual hydrogeology (outlined in a following section) indicates that it may be hydraulically upgradient. A site plan showing the septic system is given by Figure M0133-A in Appendix A7.

7.3 Water Quality Results

7.3.1 Water Quality Results from Previous Sampling

Bacteriological

Four samples were collected from the M0133 Beaver Creek RCMP Residence water system between September 2004 and June 2005 and were tested for total coliform and *E. coli* by Yukon Environmental Health Services using the presence/absence test method. Results are tabulated in Table M0133-1 in Appendix A7. Coliform bacteria and *E. coli* were reported as absent in each of the four samples for which results are provided.

Potability

Water samples were previously collected from the M0133 Beaver Creek RCMP Residence water system on September 23, 2004 and June 15, 2005. The samples were submitted to Northwest Labs in Surrey, BC and ALS Environmental in Vancouver, BC for potability analyses. The results of these analyses are summarized in Table M0133-2 in Appendix A7. EBA reviewed the analytical results to compare them with the Canadian Drinking Water Quality Guidelines (CDWQG) to observe general water quality, identify and recommend additional sampling and analytical, and to identify indicators of potential contamination as follows:

- The turbidity of the water during the June 15th, 2005 sampling event was reported at 2.28 NTU, which is in exceedence of the CDWQG MAC of 1.0 NTU;
- The water quality results indicated that all other health based and aesthetic objectives were met for the parameters analyzed;
- The water quality results indicated that the groundwater from which this system receives its water supply is a calcium bicarbonate type water; and,
- The hardness (as $CaCO_3$) was 151 mg/L during the first sampling event, and is considered hard. During the second sampling event the hardness (as $CaCO_3$) was 141 mg/L, and is also considered hard.

7.3.2 Identification of Additional Analytical Testing Required

Additional analytical for the M0133 Beaver Creek RCMP Residence that was identified to be included during the water system assessments is detailed below:

- As there had previously been an exceedence of the CDWQG MAC for turbidity, a sample was taken to re-test for turbidity;
- UV absorbance and UV transmissivity, as well as tannins and lignin, to determine potential for UV treatment as a disinfection option for this water system;
- Total organic carbon (TOC); and,
- Measurements in the field for total dissolved solids, conductivity, pH, and temperature.

Additional Analytical Results

A water sample was obtained during the water system assessment on July 27, 2005, and was submitted to ALS Environmental in Vancouver, BC for analysis. These results are summarized in Table M0133-2 in Appendix A7 and the laboratory reports are included in Appendix B. The water quality results from additional analytical sampling indicated that all health based and aesthetic objectives were met for the parameters analyzed.

7.3.3 Indicators of Potential Contamination

Chloride, nitrate and nitrite concentrations can indicate impacts from surfacewater sources or septic waste. Although below the MAC, the chloride concentrations were elevated compared to normal background ranges for groundwater in the area. Nitrate and nitrite concentrations for this sample were low and within the normal background range for this area. These water quality results do not suggest that the aquifer from which the groundwater is obtained for the M0133 Beaver Creek RCMP Residence is under the influence of surfacewater sources or septic wastes. Road salting on the highway adjacent to the well could result in elevated chloride concentrations.

7.4 Conceptual Hydrogeology

The log for this well indicates that the well is completed at a depth of 37.4 m within a gravel aquifer. The lithology indicates mostly gravel with variable till and silty sediments. This is consistent with most well logs in the area, which indicate that discontinuous lenses of finer-grained sediments persist throughout the area, but in general the sediments are dominated by coarse alluvium. Some discontinuous permafrost is also interpreted to persist throughout the Beaver Creek area. The static water level the abandoned well was measured to be 12.1 m below the top of the casing and approximately 13.7 m below grade. The presence of variable interbedded fine grained material overlying the aquifer indicates limited protection from surficial sources of contamination. A study previously completed in the Beaver Creek area by EBA determined that the direction of groundwater flow in the vicinity of the site is north to northeasterly.

7.5 Potential Contaminant Sources

Potential contaminant sources identified during the water system assessment are compiled in field notes in Appendix A7. Photos of potential contaminant sources are also provided in Appendix A7.

Potential contaminant sources within 30 m of the wellhead are:

- An indoor fuel storage tank (AST) at 3 m;
- An abandoned well approximately 1 m from the well that is currently not in use; and
- A septic Tank at 20 m (note that sewage regulation allows tank to be within 15 m).

In addition, the septic field is located 40 m away from the well.

7.5.1 Spills Records and Contaminated Sites Search Results

The Government of Yukon Environmental Programs Branch and Environment Canada Environmental Protection Branch did not identify any recorded spill events or contaminated sites issues for this site or neighbouring sites.

7.6 Identified Water System Deficiencies and Associated Risk

7.6.1 High and Medium Risk Deficiencies

- Poor surface completion of the wellhead (located in an enclosure below grade);
- There is no surface sanitary seal (grout or bentonite seal as required by the Canadian Groundwater Association's Guidelines for Water Well Construction;
- By definition of the Draft Yukon GUDI Assessment Guideline, the well is potentially under the direct influence of surface water because does not meet the requirements of the Guidelines for Water Well Construction.
- The well is located within 30 m of potential sources of contamination including: an abandoned well that is not equipped with a proper cap and is located within 1 m of the current well, and an AST located in the basement of the building; and,
- There is no disinfection system.

7.6.2 Low Risk Deficiencies

- There had been a previous CDWQG MAC exceedence for turbidity, but the most recent sampling event reported turbidity below the CDWQG MAC;

- The plumbing installation was observed to be unprofessional, and the softener discharge is not to code;
- The water softener was not functioning at the time of the water system assessment;
- The in-line filter was observed to need replacing; and,
- There is an indoor fuel storage tank located in the basement of the residence, however, because the floor is concrete the potential risk of impact to the well from a spill or leak event is considered minimal.

7.7 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).

7.7.1 Priority 1

- An NSF/ANSI 55 approved UV disinfection system (or equivalent) should be installed. This is a conceptual design recommendations based on the information available for planning and budgeting purposes. Engineering input will be required for final system specifications; and
- The abandoned well should be properly decommissioned by backfilling it with grout or bentonite, and welding a cover over the casing.

7.7.2 Priority 2

- The wellhead at M0131 should be extended to a minimum of 500 mm above the surrounding grade, and the well pit should be backfilled with a low-permeability material to provide a surface seal around the well casing. A surface sanitary seal (grout or bentonite) should be installed as deep as possible during wellhead improvements.

7.7.3 Priority 3

- Upgrade plumbing to meet code;
- Repair water softener, and replace filter; and,
- Install secondary containment tray around AST.

7.8 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.

7.8.1 Priority 1

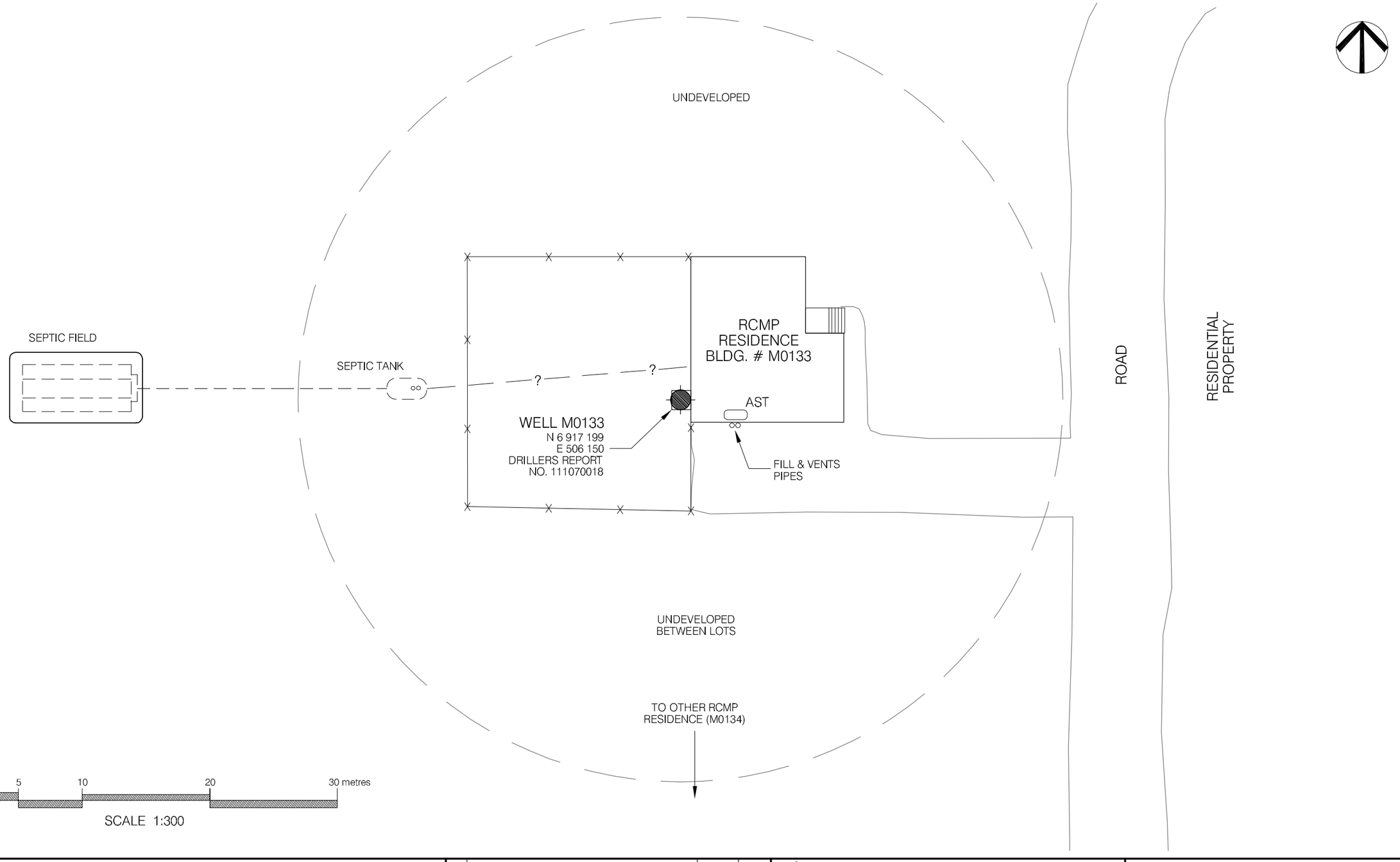
- It would cost approximately **$2,200** for supply and installation of a UV disinfection system; and
- Proper decommissioning of the abandoned well would cost in the order of **$1,000** for materials and labour.

7.8.2 Priority 2

- Standard wellhead upgrades (casing extension, sanitary seal, plumbing and electrical extensions, and insulation and heat trace as necessary) would cost approximately **$4,000**; and,
- Installation of NSF 61 NSF 61 filtration system (to 1 micron absolute) would cost in the order of **$500.**

7.8.3 Priority 3

- It is estimated that the recommended plumbing upgrades would cost approximately **$100**;
- To repair the water softener (replace media), and replace filter would cost approximately **$600** for materials and labour; and
- To supply and install a secondary containment tray around the AST would cost approximately **$500.**



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:	AUG. 2005
SCALE:	AS SHOWN
PROJECT No.:	1260002.003
ACAD FILENAME:	003-WESTERN REGION

CLIENT: Yukon
Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
WESTERN REGION

GOVERNMENT OF YUKON
HIGHWAYS & PUBLIC WORKS

BEAVER CREEK RCMP
RESIDENCE BUILDING # M0133
SITE LOCATION DIAGRAM
WELL ID: M0133

REVISION ISSUE: 0

FIGURE No.: FIGURE M0133-A

Z:\0201Drawings\1260002 Water Assessment YTG\003 -Western Region\beaver\1260002 B Crk RCMP Res_M0133A Site Plan.dwg, 9/20/2005 9:12:33 PM, Adobe PDF

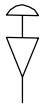
LEGEND


PUMP


PRESSURE GAUGE


GATE VALVE


CHECK VALVE

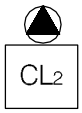

SOLENOID

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

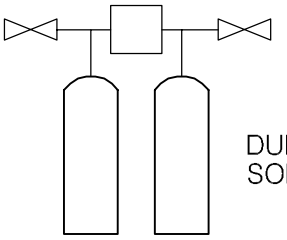
FLOW METER

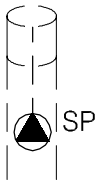
WATER FILTER
(CARTRIDGE TYPE)

PRESSURE TANK

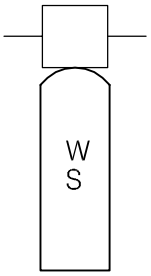


CHLORINE RESERVOIR AND
INJECTION PUMP


DUPLEX WATER
SOFTENER

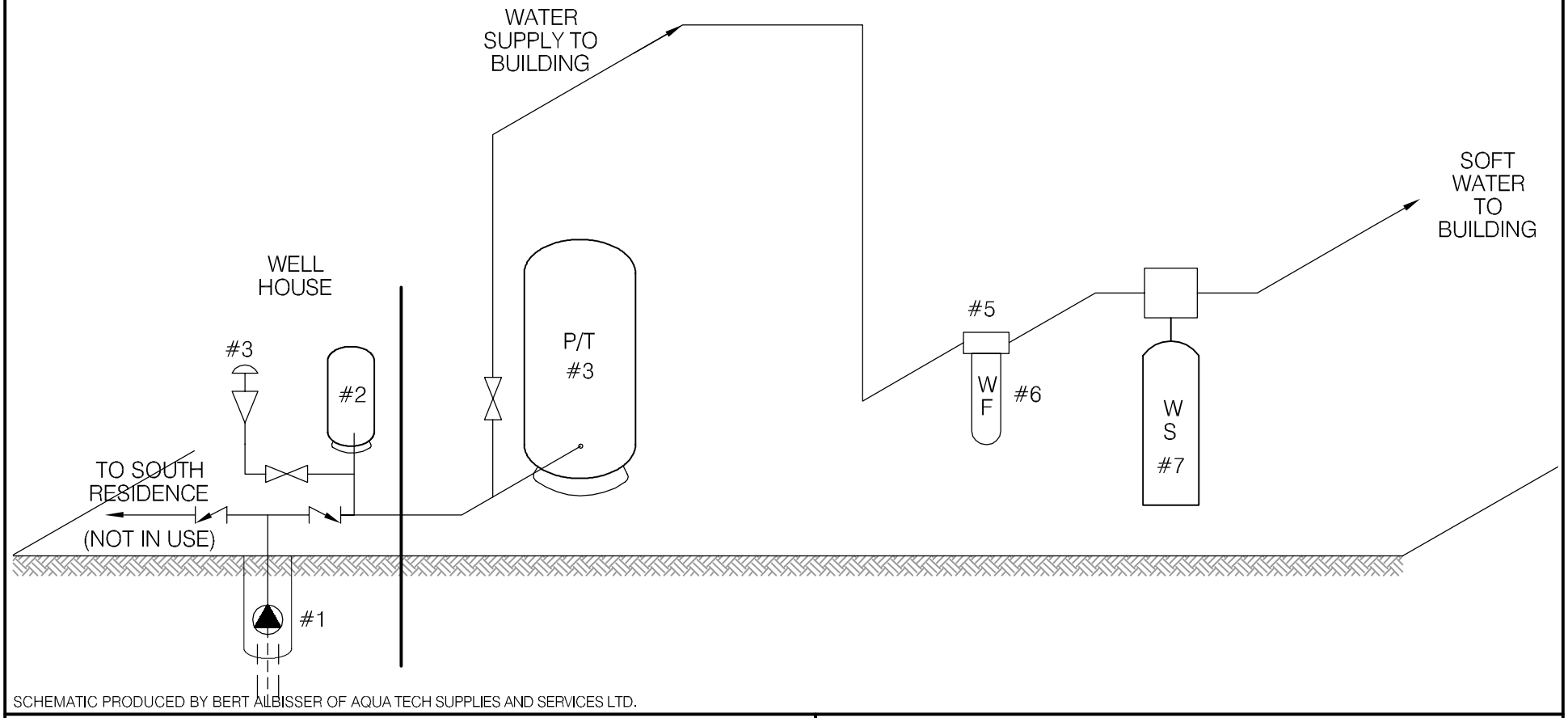


WELL WITH
SUBMERSIBLE PUMP



ACTIVATED
CARBON

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT 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 WESTERN REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			TITLE	WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: M0133 BEAVER CREEK RCMP RESIDENCE	
DATE SEPT. 2005	DWN. JSB	CHKD. RMM	FILE NO. 1260002.003		DWG.: FIGURE M0133-B

Z:\0201Drawings\1260002 Water Assessment YTG\003 -Western Region\beaver\1260002 B Crk RCMP Res_M0133B Schematic.dwg, 4/4/2006 12:42:28 PM, Adobe PDF, jbuyck

Western Region – R.C.M.P. Housing
Building # MO133 ? NORTH

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	SUB. PUMP	UNKNOWN	3/4HP.			4" - 3/4HP
2	PRESSURE TANK #1	JET RITE	JR15.			
3	PRESSURE TANK #2	WELL RITE	WR-260			
4	PRESSURE SWITCH	SQUARE D	FSG-2			2HP - 1/4" NPT.
5	INLINE FILTER	CUNO	10" CLEAR			10" 3/4" NPT
6	FILTER CART.	CUNO	AP-110			10" x 2 1/2"
7	WATER SOFTENER	NOVATEK.	HC20MI		202531	20K.
8						
9						
10						

TABLE MO133- 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?
M0133	Beaver Creek R.C.M.P. Residence	4	Sept-04 to Jun-05	no	0/4	no	16-Jun-05	no

Table MO133-2: Water Quality Results

SOURCE:	Building M0133 - Beaver Creek RCMP Residence			GCDWQ Criteria		
Location/ Resident	Beaver Creek					
Address						
Treatment	Filtration					
Disinfection	None					
Source of Water	On-site well					
Purpose of Sampling	Base Line	Base Line	Additional Analytical			
Sample Location			Kitchen tap			
Date Sampled	23-Sep-04	15-Jun-05	27-Jul-05	**Lower**	**Upper Limit**	
Physical Tests *(ALS)*				**AO**	**MAC**	**AO**
Colour (CU)	<5	<5.0	-			15
Conductivity (uS/cm)		309	-			
Total Dissolved Solids	171	189	-			500
Hardness CaCO3	151	141	-	AO >200 = poor, > 500 unacceptable[A]		
pH	8.21	8.25	-	6.5		8.5
Turbidity (NTU)	0.4	**2.28**	0.360		1	5
UV Absorbance			0.0050			
% UV Transmittance			98.9			
Dissolved Anions *(ALS)*						
Alkalinity-Total CaCO3	128	138	-			
Chloride Cl	1.1	0.83	-			250
Fluoride F	<0.05	0.057	-		1.5	
Silicate SiO4			-			
Sulphate SO4	32.6	35.2	-			500
Nitrate Nitrogen N	0.2	0.22	-		10	
Nitrite Nitrogen N	<0.05	<0.10	-		3.2	
Ammonia Nitrogen N			-			
Total Phosphate PO4			-			
Total Metals *(ALS)*						
Aluminum T-Al	<0.005	<0.010	-			
Antimony T-Sb	<0.0002	<0.00050	-		0.006	
Arsenic T-As	0.0012	0.00093	-		0.025	
Barium T-Ba	0.017	<0.020	-		1	
Boron T-B	0.027	<0.10	-		5	
Cadmium T-Cd	<0.00001	<0.00020	-		0.005	
Calcium T-Ca		45.2	-			
Chromium T-Cr	0.0006	<0.0020	-		0.05	
Copper T-Cu	0.053	0.0494	-		1	
Iron T-Fe	0.03	<0.030	-			0.3
Lead T-Pb	<0.0001	<0.0010	-		0.01	
Magnesium T-Mg		6.86	-			
Manganese T-Mn	<0.005	<0.0020	-			0.05
Mercury T-Hg		<0.00020	-		0.001	
Potassium T-K		1.24	-			
Selenium T-Se		<0.0010	-		0.01	
Sodium T-Na		2.8	-			200
Uranium T-U	<0.0005	0.00035	-		0.02	
Vanadium T-V			-			
Zinc T-Zn	0.021	<0.050	-			5
Organic Parameters						
Tannin and Lignin			<0.10			
Total Organic Carbon C			1.03			
Field Chemistry (EBA)						
pH			8.34	6.5		8.5
TDS (ppm)			51			500
EC (uS/cm)			104			
Temperature (°C)			7.8			
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

SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: Ryan Martin, Luke Lebel Date July 27, 2005

WELL ID #	Owner	Location Description
M0133	RCMP	Beaver Creek RCMP Residences

1. Well Location and Potential Contaminant Sources

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

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

c. GPS location: N 6917199 E 506150 elv 667m ± 6m

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_____
RCMP Residence.

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

g. Nearest building, specify located off of basement of M0133 Residence

h. Distance from well to 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: ~20m to tank, ~40m to field

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 unlikely

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

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
located in residence

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

q. Is the well site well drained? ☐ Yes ☒ No Ground around well is flat

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: Indoor AST ; Distance from well to Potential Source 1: ~2m

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: _____

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

How many? 1 ☐ in use ☒ abandoned ☒ require proper sealing
is not equipped with a cap on the casing

2. Well and Wellhead information:

a. When was well installed? Year 1992 Month June

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: 35.90 m could be pump ☒ measured (if possible) ☐ reported ☐ from log 123 ft from log

h. Static water level below ground: 12.090 m bc 47 ft from log

☒ 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) 25 slot
Location of screen: from 121.5 ft to 123 ft (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 of from basement of residence

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

i. Is the well head below grade? describe in detail ~1.85m below grade

ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? ☒ Yes ☐ No
Some dampness on floor

iii. Is the wellhead enclosed by fiberglass insulations? ☒ Yes ☐ No in walls of enclosure

iv. Any evidence of rodents? Specify Access possible

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

If no, describe condition Split gasked 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?

☒ Yes ☐ No ☐ farther investigation required.

If yes is there treatment or disinfection ☒ Yes ☐ No

Explain (filtration, disinfection etc...) filtration

---

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 unlikely

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

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: off from heated building

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

b. Recommendations: _____

PART B: EBA Site Inspection

Inspector: BERT ALISSER Date JULY 27/05

WELL ID #	Owner	Location Description
M0133	YTG	RCMP RESIDENCE (NORTH) BEVER CREEK

6. Water Treatment

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

☐ 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 TANK.

Where is it located?
Comments: #1 IN WELL ENCLORE / #2 IN BASEMENT

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:

THE PIPING AT WELL HEAD IS UNPROFESSIONAL. THE WATER SOFTENER IS NOT OPERATIONAL AND THE INLINE FILTER IS IN NEED OF CHANGING.
THE SOFTNER DRAIN IS NOT TO CODE.

b. Recommendations:

REPAIR WATER SOFTENER AS NECESSARY IN PUT BACK INTO SERVICE. CHANGE INLINE FILTER. REPIPE SOFTNER DRAIN TO CODE. BRING WELL HEAD PIPING TO CODE.

Field Report 111070018

MIDNIGHT SUN DRILLING CO. LTD. WHITEHORSE Y.T.

13 MacDONALD ROAD
WHITEHORSE, YUKON
Y1A 4L1

PHONE (403) 633-3070
TELEX 036-8496

Started. June 11 ..... 19 92

Completed. June 12 ..... 19 92

NAME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
Yason Contracting	W (W)	RCMP Project
		Beaver Creek
	92-19-16	

FORMATION LOG FROM	TO	FORMATION	DESCRIPTION OF WORK	TIME DATE	FROM	TO	HOURS
			MOVE				
			Traveling	June 11	5:00	1:00	8
			move on set up	11	2:00	3:00	1
2	3	Gr.	sand silt	11	3:00	8:00	5
3	14	Gr.	sand cobs				
4	25	Gr.	sand silt				
5	29	Till					
9	47	Gr.	sand				
7	56	Till					
6	100	silt					
10	103	silt		June 12	7:30	8:30	1
3	12	silt	Gr. sand				
2	123	Gr.	sand.				
			set screen	11	8:30	9:00	0.5
			Develop	11	9:00	11:00	2
			move off	11	11:00	12:00	1
			Travel to Whse	11	12:00	8:00	8

. of Casing & Pipe ze	Type	Size	Type
et	Inch	Feet	Inch
1	6		

Remarks: 40 GPM.
1- otex shoe.
25 slot screen
2' riser Pipe
K Packer
5 7/8" bit Pin

Static Level		Total Rig Time	hrs.
Ground Level	47'	Total Standby	hrs.
Top Of Casing		Drilling Mud	sacks

SIGNATURES

MIDNIGHT SUN..... CLIENT.....

TITLE..... TITLE.....

Photo 0545: M0133 Beaver Creek RCMP Residence from rear, wellhead enclosure (front centre)

Photo 0544: M0133 Septic field

Photo 0089: M0133 Pressure tank

Photo 0090: M0133 In-line filter and water softener