

19.0 BUILDING 2599: DAWSON CITY GRADER STATION

19.1 Description of Existing Water Supply System

The water system for Building 2599, the Dawson City Grader Station, is currently supplied by a drilled well located in a pit below grade approximately 6 m north of the grader station. A site plan is provided as Figure 2599-A in Appendix A19. The coordinates of the wellhead, as measured by a handheld GPS device, were recorded as:

- UTM ZONE 7
- Northing: 7102051
- Easting: 583201

Building 2599 is equipped with a dual water treatment system. Raw water from the well is filtered and softened at the point of entry to the building. The softened water is used to supply non-potable (“grey”) water to the grader station toilet fixtures and hose bibs, and some of the softened water is further treated to provide potable water to dedicated drinking water taps. The water supplying drinking water faucets is treated with a high-volume reverse osmosis (RO) treatment system. A schematic detailing the water supply system is provided as Figure 2599-B in Appendix A19. Photos of the well and water system are also included at the back of this appendix.

19.2 Description of Existing Wastewater Systems

All septic effluent from the building is discharged to ground on the west side of the building. Garage sump effluent after passing through an oil/water separator, discharges to a rock pit located approximately 36 m west and likely downgradient from the well. An in-ground septic discharge system is located near the rock pits; the tank is located approximately 42 m west of the well and the closest point of the in-ground sewage disposal system (septic field) is 50 m west and likely downgradient from the well. Figure 2599-A in Appendix A19 shows the locations of these wastewater disposal systems.

19.3 Water Quality Results

19.3.1 Water Quality Results from Previous Sampling

Bacteriological

Eight water samples were collected from the Dawson City Grader Station water system by YTG representatives between October 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 2599-1 in Appendix A19. Coliform bacteria and *E. coli* were reported as absent in each of the eight samples for which results were provided.

Potability

YTG representatives collected water samples from the Dawson City Grader Station water system on September 29th 2004 and June 8th 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 2599-2 in Appendix A19. EBA reviewed the analytical results for comparison with the Canadian Drinking Water Quality Guidelines (CDWQG) to observe general water quality, identify and recommend additional sampling and analytical and identify potential indicators of contamination.

Water treatment at this site significantly improves water quality between the point of entry and the point of consumption. Large discrepancies between water quality results from two sampling events for which results are provided indicate that samples were not obtained from the same point on this water system. Results from the first sampling event (Sept 2004) appear to be representative of post-water softener and RO treatment while water quality from the second sampling (June 2005) event appear to be representative of raw water quality.

Water quality results from the first sampling event (post softener and RO) are summarized below:

- At 6.14, the pH was below the CDWQG aesthetic objectives of 6.5. This is likely caused by the treatment system; and,
- The water quality results indicated that all other health based and aesthetic objectives (AO) were met for the parameters analyzed.

Water quality results from the second sampling event, which is considered to be representative of raw water quality, are summarized below:

- At 41.1 NTU, the turbidity was in exceedence of both the CDWQG Maximum Acceptable Concentration (MAC) of 1.0 NTU and AO of 5.0 NTU;
- At 0.0864 mg/L, the total arsenic concentration was above the current CDWQG MAC of 0.025 mg/L;
- At 0.0174 mg/L, the total lead concentration was above the CDWQG MAC of 0.01 mg/L;
- At 8.39 mg/L, the total iron concentration was above the CDWQG AO of 0.3 mg/L;
- At 0.651 mg/L, the total manganese concentration was above the CDWQG AO of 0.05 mg/L;
- 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 is calcium bi-carbonate type with a pH of approximately 8; and,
- The hardness (as CaCO_3) was 185 mg/L, and is considered very hard.

As illustrated by the raw water quality results, there are several health based and aesthetic objectives that the raw water quality does not comply with, necessitating the existing treatment system.

19.3.2 Identification of Additional Analytical Testing Required

Water samples for additional analytical testing were obtained at two points on the water system. Additional analytical completed on the sample of softened water (non-potable) collected at the time of the assessment is detailed below:

- 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 and dissolved metals;
- Turbidity;
- Phosphate and silicate in order to determine the potential for a point of entry arsenic removal system;
- Total organic carbon (TOC); and,
- Measurements in the field for total dissolved solids, conductivity, pH, and temperature.

A water sample was also collected from the potable water (post softener and RO), and analyzed for total arsenic, as previous sampling indicated the arsenic concentration to be 0.0047 mg/L, which is close to the proposed MAC for arsenic of 0.005 mg/L. The purpose of this sample was to evaluate whether a point of entry arsenic removal system will be required at some point in the future when the proposed MAC is brought into effect.

Additional Analytical Results

Water samples were obtained by EBA during the water system assessment on August 19, 2005 and submitted to ALS Environmental in Vancouver BC for analysis as described above. These results are also summarized in Table 2599-2 in Appendix A19 and the laboratory reports are included in Appendix B. Details are summarized below:

- The post RO sample had turbidity above the CDWQG at 1.22 NTU;
- As expected, the softened water had both total and dissolved iron and manganese concentrations below the CDWQG aesthetic objectives;
- Total and dissolved lead in the softened water are reported below the laboratory detection limit of 0.0020 mg/L;
- Total and dissolved arsenic concentrations (0.047 and 0.0441 mg/L) of the softened water are above the CDWQG MAC of 0.025 mg/L; and
- The total arsenic concentration in potable water collected at the point of consumption (post RO) was 0.00457 mg/L and meets both the current proposed CDWQG MAC.

19.3.3 Indicators of Potential Contamination

Chloride, nitrate and nitrite concentrations can indicate impacts from surface water sources or septic waste. Chloride concentrations were low and are within the normal background ranges for groundwater in the area. Nitrate and nitrite concentrations for this sample were also low and within the normal background range for this area. These water quality results suggest that the aquifer from which the groundwater is obtained for the Dawson City Grader Station was not under the influence of septic wastes at the time of sampling.

19.4 Conceptual Hydrogeology

A driller's well log was not available for this well. Logs for wells in the area indicate that most wells are completed at depths ranging from 9 m to 20 m and generally draw water from unconfined sand and gravel aquifers. These aquifers are alluvial floodplain sediments deposited by the Klondike River and underlain by bedrock. The water levels and flow directions in these aquifers are generally closely connected to water levels in the Klondike River. This well is likely completed within this unconfined aquifer, which is vulnerable to surficial sources of contamination.

This well is located southeast of the Klondike River; the expected direction of groundwater flow is west with a component of flow that is northwesterly towards the Klondike River.

19.5 Potential Contaminant Sources

Details and photographs of potential contaminant sources observed during the site investigation are compiled in Appendix A19.

Potential contaminant sources within 30 m of the wellhead are:

- Vehicle parking at 2 m; and,
- Industrial activities within 30 m.

Also indicated on the site plan several other potential contaminant sources are within 60 m of the well as indicated below:

- Rock pits;
- Septic Tank;
- Septic Field;
- EnviroTank AST;
- Used solvent and other partially filled drums with unknown contents; and,
- Dredge pond (surface water).

19.5.1 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.

19.6 Identified Water System Deficiencies and Associated Risk

19.6.1 High and Medium Risk Deficiencies

High and medium risk deficiencies for this water system that were identified during this study include:

- Poor surface completion of the well (located in a pit 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 it does not meet the requirements of the Guidelines for Water Well Construction;
- There is no driller's log available to review lithology and well construction;
- The well is located within 30 m of potential contaminant sources, including vehicle parking and industrial activities;
- Water samples taken from raw water have reported elevated arsenic, lead, turbidity, iron, manganese and colour; and,
- There is no disinfection (other than membrane filtration).

19.6.2 Low Risk Deficiencies

- The pH of the reverse osmosis treated water was below the CDWQG AO at the time of analysis.

19.7 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).

19.7.1 Priority 1

Recommended upgrades to remedy observed deficiencies that are potentially high or immediate health risks are detailed below:

- Install an NSF/ANSI certified UV treatment system (or equivalent) post softener and in advance of RO system to ensure disinfection of potable water. These are conceptual design recommendations based on the information available for planning and budgeting purposes. Engineering input will be required for final system specifications; and,
- Superchlorinate well and water system.

19.7.2 Priority 2

The following Priority 2 upgrades are recommended to mitigate remaining health risks:

- Standard wellhead upgrades consisting of pitless adapter installation, casing extension, retrofitting of a bentonite/grout surface sanitary seal, casing insulation and installation of a high visibility lockable PVC stick-up casing protector.
- Ensure that all commercial/industrial activities are restricted to areas on the site that are at least 30 m and preferably downgradient west of the well. It may not be feasible to have all vehicle parking at least 30 m from the well, however, it is recommended that parking areas should be at least 10 m from well.

19.7.3 Priority 3

No low risk deficiencies have been identified for this site.

19.8 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.

19.8.1 Priority 1

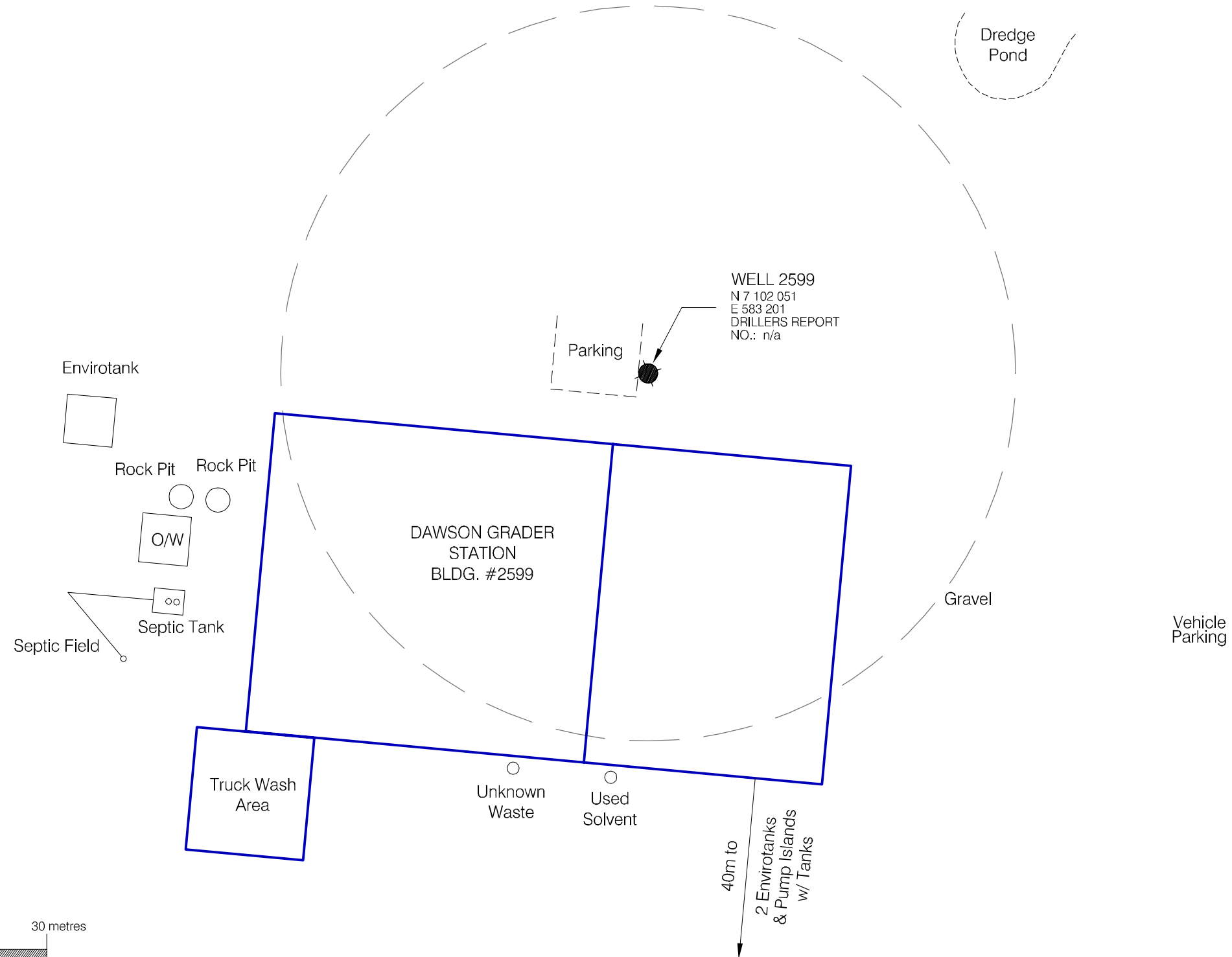
The recommended UV system and system superchlorination would cost approximately **\$2,800** for all materials and labour.

19.8.2 Priority 2


Standard wellhead upgrades as proposed (pitless adapter) would cost approximately **\$3,000** for materials and labour.

19.8.3 Priority 3


No Priority 3 upgrades have been identified at this time.




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.

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

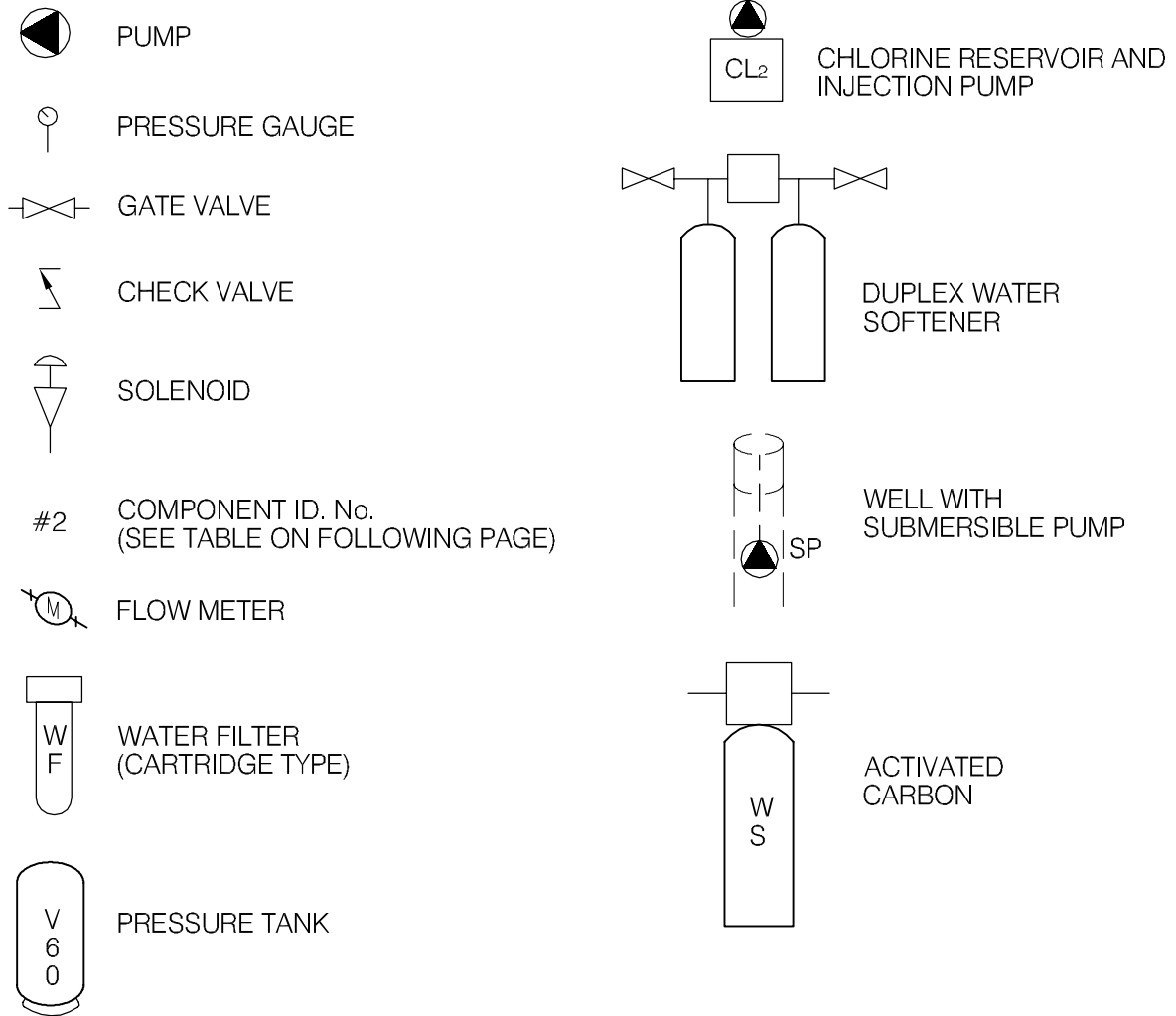
**EBA Engineering Consultants Ltd.**

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

CLIENT:

Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT NORTHERN REGION	
GOVERNMENT OF YUKON HIGHWAYS & PUBLIC WORKS	
DAWSON GRADER STATION BUILDING # 2599 SITE LOCATION DIAGRAM WELL ID: 2599	REVISION ISSUE 0 FIGURE No. FIGURE 2599-A

LEGEND



EBA Engineering Consultants Ltd.

CLIENT

Yukon
Highways and Public Works
Property Management Branch

PROJECT

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
WESTERN REGION

TITLE

SCHEMATIC SYSTEM
LEGEND

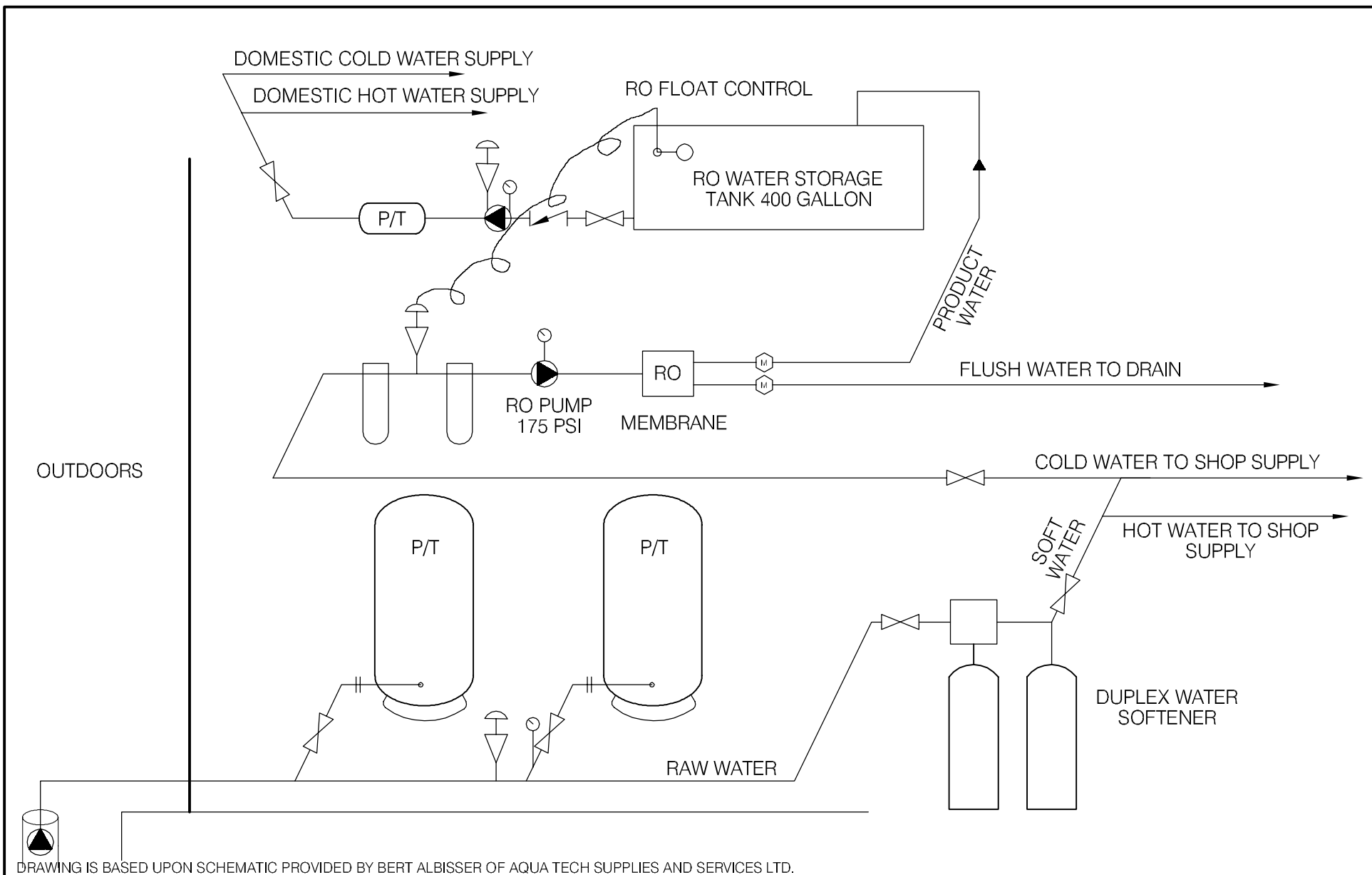
DATE APRIL 2006



DWN. JSB

CHKD. RMM

FILE NO. 1260002

DRWG. LEGEND



 <div>EBA Engineering Consultants Ltd.</div>			PROJECT SMALL PUBLIC WATER SYSTEMS ASSESSMENT NORTHERN REGION						
CLIENT  <div>Yukon Highways and Public Works Property Management Branch</div>			TITLE WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: 2599 DAWSON GRADER STATION - DAWSON, YT.						
DATE	SEPT. 2005	DWN.	JSB	CHKD.	RMM	FILE NO.	1260002.004	DWG.:	FIGURE 2599-B

**Northern Region – Dawson City Grader Station
Building # 2599**

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	SUB PUMP	N/A	N/A			4"
2	PRESSURE TANKS	CON-AIRE	SCA 220	X 2		
3	PRESSURE SWITCH	SQUARE D	FSG 2			
4	PRESSURE GAUGE	WINTERS	0-100 4"			
5	WATER SOFTENER	AQUA TECH	AQUA 9500 98000-MI			90K DUPLEX
6	RO. SYSTEM	AQUA TECH	U566LT 1800			22000 GPD
7	STORAGE TANK	N/A.				
8	JET PUMP					
9	PRESSURE TANK					
10	INLINE FILTER					

TABLE 2599 - 1: SUMMARY OF BACTERIOLOGICAL RESULTS

		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?
Building #	Building Name							
2599	Dawson City Grader Station	8	Oct-04 to Jun-05	no	0/8	no	9-Jun-05	no



Table 2599 - 2: Water Quality Results

SOURCE:		Building 2599 - Dawson City Grader Station				GCDWQ Criteria		
Location/ Resident		Dawson City						
Address								
Treatment		Softener, filtration, reverse osmosis	None	Softener, filtration	Softener, filtration, reverse osmosis			
Disinfection		None						
Source of Water								
Purpose of Sampling		Base Line	Base Line	Additional Sampling	Additional Sampling			
Sample Location				faucet (Non- Potable)	Washroom			
Date Sampled		29-Sep-04	8-Jun-05	19-Aug-05	19-Aug-05			
Physical Tests (ALS)						AO	MAC	AO
Colour (CU)		<5	8.5					15
Conductivity (uS/cm)			386					
Total Dissolved Solids		<1	243	<1.3				500
Hardness CaCO3		<0.9	185			AO >200 = poor, > 500 unacceptable ^A		
pH		6.14	7.96			6.5		8.5
Turbidity (NTU)		0.3	41.1	1.22			1	5
UV Absorbance				0.109				
% UV Transmittance				77.8				
Dissolved Anions (ALS)								
Alkalinity-Total CaCO3		<5	134					
Chloride Cl		<0.5	0.99					250
Fluoride F		<0.05	0.112				1.5	
Silicate SiO4				13.8				
Sulphate SO4		<0.2	72.7					500
Nitrate Nitrogen N		<0.1	<0.10				10	
Nitrite Nitrogen N		<0.05	<0.10				3.4	
Ammonia Nitrogen N								
Total Phosphate PO4				0.0159				
Total Metals (ALS)								
Aluminum T-Al		<0.005	0.092	<0.020			0.1	
Antimony T-Sb		<0.0002	<0.00050	<0.0010			0.006	
Arsenic T-As		0.0047	0.0864	0.047	0.00457		0.025	
Barium T-Ba		<0.001	0.165	<0.040			1	
Boron T-B		0.002	<0.10	<0.20			5	
Cadmium T-Cd		<0.00001	<0.00020	<0.00040			0.005	
Calcium T-Ca			48.7	<0.20				
Chromium T-Cr		<0.0005	<0.0020	<0.0040			0.05	
Copper T-Cu		0.259	0.0423	0.0097			1	
Iron T-Fe		<0.01	8.39	0.171				0.3
Lead T-Pb		0.0039	0.0174	<0.0020			0.01	
Magnesium T-Mg			15.3	<0.20				
Manganese T-Mn		<0.005	0.651	<0.0040				0.05
Mercury T-Hg			<0.00020	<0.00020			0.001	
Potassium T-K			0.81	172				
Selenium T-Se			<0.0010	<0.0020			0.01	
Sodium T-Na		<0.4	4.3	<2.0				200
Uranium T-U		<0.0005	0.00189	0.00084			0.02	
Vanadium T-V				<0.030				
Zinc T-Zn		0.019	0.134	<0.10				5
Dissolved Metals								
Aluminum D-Al				<0.020			0.1	
Antimony D-Sb				<0.0010			0.006	
Arsenic D-As				0.0441			0.025	
Barium D-Ba				<0.040			1.0	
Boron D-B				<0.20			5	
Cadmium D-Cd				<0.00040			0.005	
Calcium D-Ca				<0.20				
Chromium D-Cr				<0.0040			0.05	
Copper D-Cu				0.0138				1.0
Iron D-Fe				0.043				0.3
Lead D-Pb				<0.0020			0.01	
Magnesium D-Mg				<0.20				
Manganese D-Mn				<0.0040				0.05
Mercury D-Hg				<0.00020			0.001	
Potassium D-K				172				
Selenium D-Se				<0.0020			0.01	
Sodium D-Na				<2.0				200
Uranium D-U				0.0008			0.02	
Vanadium D-V				<0.030				
Zinc D-Zn				<0.10				5.0
Organic Parameters								
Tannin and Lignin				0.24				
Total Organic Carbon C				4.61				
Field Chemistry (EBA)								
pH				7.81	7.83	6.5		8.5
TDS (ppm)				267	3			500
EC (uS/cm)				535	6			
Temperature (°C)				1.1	17.2			
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)



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SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: Ryan Martin, Luke Lebel

Date August 19, 2005

WELL ID #	Owner	Location Description
2599	YTG	Dawson City Grader Station

1. Well Location and Potential Contaminant Sources

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

Dawson City

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

Klondike Highway

c. GPS location: N 7102051 E 583201 elev 343m $\pm 10m$

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 _____

Grader Station

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

g. Nearest building, specify Grader Station

h. Distance from well to building ~6m

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

j. Distance from well to nearest point of known field: 50 m

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

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- 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

Tank @ ~42m, Rock pits @ ~36m

- 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

Unlocked enclosure

Entrance by animals? ☒ Yes ☐ No

Access possible, but unlikely

- 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

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: ASTs; Distance from well to Potential Source 1: ~44m

Potential Source 2: Fuelling station; Distance from well to Potential Source 2: ~74m

Potential Source 3: Drums; Distance from well to Potential Source 3: ~33m

Potential Source 4: Oil/water separator; Distance from well to Potential Source 4: ~40m

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

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

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2. Well and Wellhead information:

- a. When was well installed? Year unknown 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: unknown ☐ measured (if possible) ☐ reported ☐ from log
- h. Static water level below ground: unknown
☐ 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 unknown
- 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 unknown
- m. Is the well head: ☐ in pumphouse ☒ in pit ☐ pitless adaptor ☐ in a building
☐ in a wooden enclosure other, describe _____
- n. If the well head is located in a wooden enclosure,

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- i. Is the well head below grade? describe in detail ~ 2.3 m below grade
- 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 Spl + 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?
- ☒ Yes ☐ No ☐ farther investigation required.

If yes is there treatment or disinfection ☒ Yes ☐ No

Explain (filtration, disinfection etc...) softener for regular water + RO for drinking water

4. Aquifer Supplying This Well:

- a. The aquifer is: ☐ bedrock ☒ granular sediment ☐ unknown
likely
- 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 _____

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d. Date installed: _____ By: _____

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

f. Drop pipe for submersible pump: ☐ steel ☐ plastic *unknown*

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
But tap against floor

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: Styrofoam insulation + heat trace

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

b. Recommendations: _____

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PART B: EBA Site Inspection

Inspector: BERT ALBISER

Date AUG 19/05

WELL ID #	Owner	Location Description
<u>2599</u>	<u>YTG</u>	

6. Water Treatment

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

☐ chlorination ☒ iron and or manganese removal ☒ other REVERSE OSMOSIS

b. Is water entering plumbing or piped distribution system treated with chlorine or another treatment that is as effective as chlorine used to achieve disinfection throughout the system?

☐ Yes ☒ No If so how _____

c. If treated with chlorine, is the free residual chlorine concentration less than 0.2 mg/L

☐ Yes ☒ No _____ reading.

Tested at _____ (location)

d. Is testing for chlorine residual concentration done at the tap (eg. Kitchen faucet) or from representative points in a piped distribution system, including a point from tap at the end line

☐ Yes ☒ No If yes how often? _____

e. If the drinking water is being transported by water delivery truck does it have a minimum chlorine free residual of 0.4 mg/L at the time of fill. ☐ Yes ☒ No

7. Water Quality (observations):

a. Does the water stain plumbing? ☐ yes ☐ No ☒ slight ☐ severe

Type of stain: ☐ brown ☐ red ☐ black

b. Does the water contain sediment? ☐ Yes ☒ No ☐ occasional ☐ constant

c. Is there an unpleasant odour? ☐ Yes ☒ No ☐ H₂S ☐ Other _____

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

TANK AND PIPING DETAILS

Tank Room

Is there a water tank? ☒ Yes ☐ No Details: PRESSURE TANKS & R.O. WATER STORAGE TANK

Where is it located? RO TANK UNDER REAR STAIRWELL

Comments: PRESSURE TANKS UNDER FRONT STAIRWELL

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? FIBRE GLASS

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 INSTALLATION IS IN GOOD ORDER

b. Recommendations:

INSTALL FILTRATION AND UV SYSTEM (WFF-55)
ON DOMESTIC LOOP.

**Photo 087:** 2599 Wellhead enclosure.**Photo 086:** 2599 Wellhead in pit.**Photo 230:** 2599 Pressure tank, pump controls and softener system.**Photo 234:** 2599 Reverse osmosis system (front) water storage tank (back)