

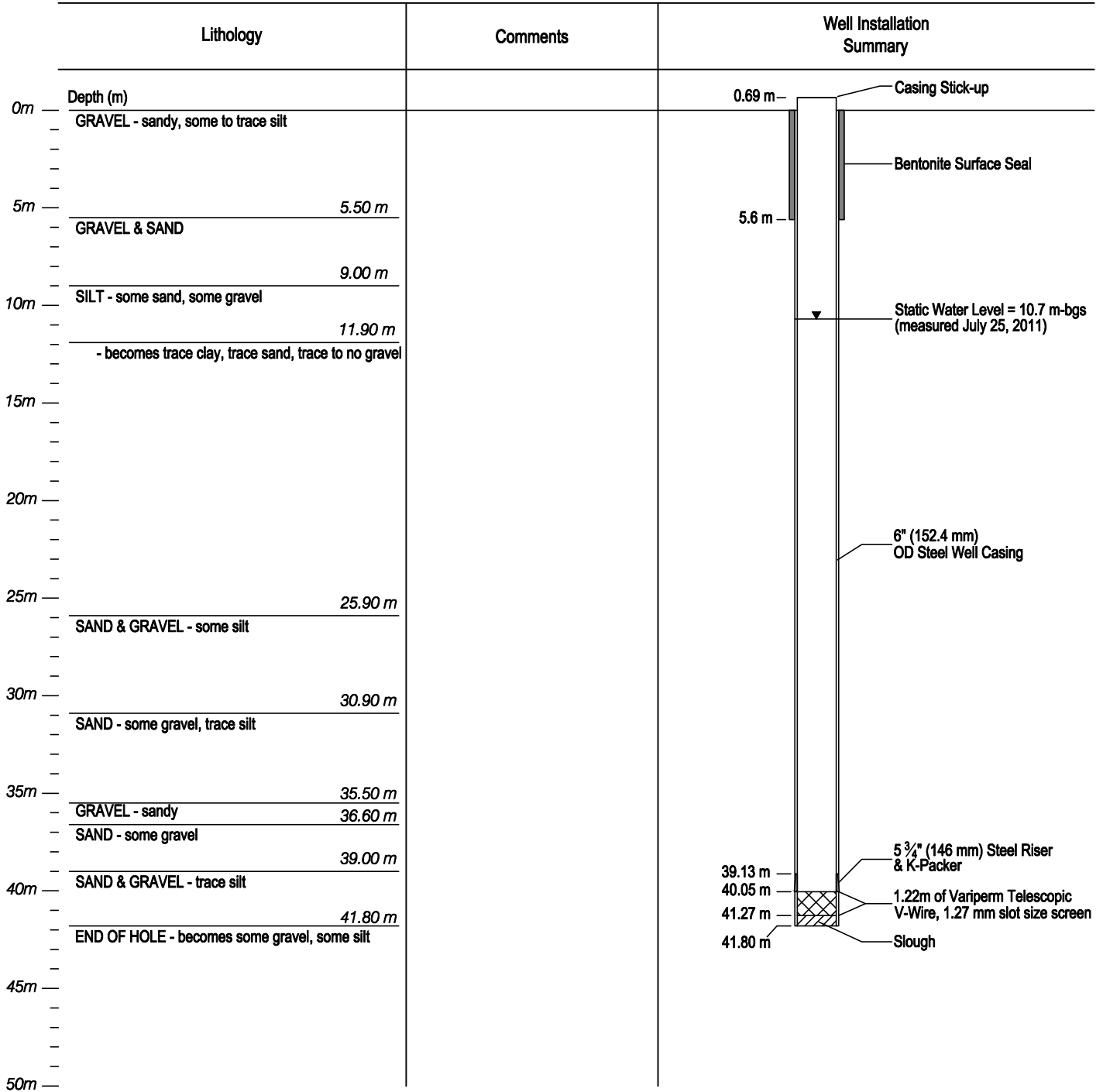
# HYDROGEOLOGIC LOG

**PURPOSE OF HOLE:** Canada Border Service New Housing Water Supply  
**DRILLING METHOD:** Dual Air Rotary  
**DRILLING DATE:** July 23, 2011  
**SCREEN INSTALLED:** 40.05 m - 41.27 m bgs  
**CONTRACTOR:** Impact Well Drilling

# BOREHOLE NO.

CBSA - BEAVER CREEK - YT - WDS - 000025

**CASING STICK UP:** 0.69 m above grd  
**DEPTH TO SCREEN (m):** 40.05 m bgs



CLIENT



**WATER WELL COMPLETION REPORT**  
**CBSA NEW HOUSING - BEAVER CREEK, YUKON**

## WELL LOG

|                          |           |           |          |
|--------------------------|-----------|-----------|----------|
| PROJECT NO.<br>W23101451 | DWN<br>CB | CKD<br>SK | REV<br>0 |
|--------------------------|-----------|-----------|----------|

|                    |                        |
|--------------------|------------------------|
| OFFICE<br>EBA-WHSE | DATE<br>August 8, 2011 |
|--------------------|------------------------|

Figure 3



Government  
Department of Environment  
Water Resources Section V-310  
Yukon Water Well Registry  
Box 2703 Whitehorse, Yukon Y1A 2C6

**WATER WELL  
DRILLERS FORM**

Well ID: CBSA-Beaver Creek-YT-WDS-000025

To be assigned by Dept. Of Environment

**INSTRUCTIONS FOR COMPLETING THE FORM**

- Additional information is provided at the bottom of this form on page 2.
- Question can be directed to Water Resources at 867 667-3171.
- All well construction measurements shall be reported to 0.1 m or 0.3 ft.
- Please print clearly in blue or black ink.
- Completion and submission of this form is the responsibility of the drilling contractor.
- Please specify metric or imperial units for all measurements.

**WELL LOCATION AND OWNER'S INFORMATION**

A1 Well Name: CBSA-Beaver Creek (Optional (i.e. City Well No. 2)  
YT-WDS-000025)

A2 Drilled For: First Name [ ] Last Name [ ] Company / Department / Organization Canada Border Service Agency

A3 Street Address of Well Location: [ ]

A4 Town / Village / Area / Lot #: Beaver Creek

A5 UTM Coordinates (using handheld GPS): NAD [8][3] Zone [0][7]

Easting: 6916909 Northing: 0506289

A6 Elevation of Top of Casing: 0.69 (m) <sup>agg</sup> / ft ASL

A7 Accuracy of GPS: 10 +/- (m) ft

**Sketch of Well Location**  
In sketch, indicate distances from property line, septic field, fuel tank(s) and building. Please include North arrow.

**A8 Purpose of Wells**

- Domestic  Test Well  Irrigation  Environmental (Quality)  
 Commercial  Municipal  Observation - Water Level  Other (please identify use)  
 Industrial  Agricultural  Public/Recreational

**LOG OF OVERBURDEN AND BEDROCK MATERIALS** (All depths are below ground surface, circle appropriate units, use descriptors provided)

| EXAMPLE ONLY   |         | (brown, grey, green, black, redish, beige, olive, yellowish) | CLAY, SILT, SAND, GRAVEL, COBBLES, BOULDERS, BEDROCK | "trace" <10% (i.e. SILT trace gravel)<br>"some" 10-20% (i.e. SAND some gravel)<br>"silty / sandy / gravelly" 20-30% (i.e. silty SAND)<br>"and sand" or "and gravel" 35-50% | MOISTURE: dry / moist / saturated (wet)<br>HARDNESS: soft / hard / very hard |                        |
|----------------|---------|--|--|--|--|------------------------|
|                |         | brown  | SAND   | trace gravel some silt   | soft and saturated   |                        |
| Depth (m / ft) | B2 From | B3 To  | B4 General Colour                                    | B5 Most Common Material  | B6 Secondary Materials   | B7 General Description |
| 0              | 2       |  | Brown  | clay   |  | soft                   |
| 2              | 5       |  |  | fine gravel  | clay   | soft                   |
| 5              | 20      |  | grey   | gravel   | Silt   | coarse                 |
| 20             | 45      |  | grey   | gravel   | thin gravel layers   | wet                    |
| 45             | 72      |  |  | clay   |  |                        |
| 72             | 73      |  |  | gravel   |  | coarse                 |
| 73             | 86      |  |  | clay   |  | soft                   |
| 86             | 102     |  |  | gravel   | silt   |                        |
| 102            | 158     |  |  | gravel   |  | coarse - 60qpm         |

B8 Permafrost Encountered:  NO  YES If yes, indicated depth (m / ft): from: [ ] to: [ ]

**WELL CONSTRUCTION** (Continues on Page 2)

Date Well Completed 20110723  
Y Y Y Y M M D D

Example: 2005 01 31

C1 Drilling Method  Air Rotary (Conventional)  Dug  Other (please specify)  
 Reverse Air Rotary  Cable Tool Aerial Rotary  
 Mud Rotary  Auger (Hollow / Solid Stem)

C2 Well Type: In what geological material is the water producing zone located?  
 OVERBURDEN  BEDROCK

**Casing** (depth below ground surface, please circle appropriate units)

C3 Outside Diameter 6 7/8 (cm / in)  
C4 Casing Material  Steel  Plastic  Other [ ]  
C5 Casing Wall Thickness 250 (cm / in)  
C6 Casing Depth to: 1338 (m / ft)

**C7 Other Comments Regarding Casing:**

**Surface / Environmental Seal** (depth below ground surface, please circle appropriate units)

C8 Seal Material Type: Bentonite chips (i.e. Bentonite)  
 C9 Diameter of Seal: 10" (cm / in)  
 C10 Seal Depth from: 0- (m / ft)  
 C11 Seal Depth to: 18.4" (m / ft)  
 C12 Volume Placed: 12 bags (m<sup>3</sup> / ft<sup>3</sup>)

**Gravel Pack** (depth below ground surface, please circle appropriate units)

C13 Gravel Pack:  NO If yes, indicated depth (m / ft):  
 YES from:      to:      Indicate diameter of material:      (mm / inches) Material type:     

**Well Screen Information** (depth below ground surface, please circle appropriate units)

C14 Outside Diameter: 5.5 (cm / in)  
 C15 Screen Material:  Stainless Steel  Steel  Plastic  N/A  Other:       
 C16 Screen Type:  Continuous Wire Wrap  Louver Screen  Perforated  Slotted  Open Hole  
 C17 Depth from: 133.3' (m / ft)  
 C18 Depth to: 137.8' (m / ft)  
 Slot Size / Perforation Dia: 50 Thou. / mm / inches  
 Screen 1:      (m / ft)      (m / ft)      Thou. / mm / inches  
 Screen 2:      (m / ft)      (m / ft)      Thou. / mm / inches  
 Screen 3:      (m / ft)      (m / ft)      Thou. / mm / inches  
 C19 Screen Comments:     

**WELL DEVELOPMENT AND STATUS**

D1 Well Developed by:  Surge Block  Water Jetting  Air Jetting / Air Lifting  Bailing  Pumping  Other:       
 D2 Well Head Completion:  Well House  Pitless Adaptor Depth of adaptor:      (m / ft)  Well Pit (NOT PERMITTED)  None (well not completed)  
 D3 Well Head Stick-up (above ground surface): 20 in (m / ft) (Use negative if below grade)  
 D4 Static Water Level (below top of casing): 35 (m / ft) (Use negative if below grade)  
 D5 Well Yield Estimate: 60 (Lps / gpm)  
 D6 Final Well Status:  Water Supply (in use)  Stand by (Back-up)  Observation  Not in use  Deepened  Other:       Abandoned  Dry  Poor Quality  Insufficient Yield  Artesian conditions  
 D7 Well Abandonment Status: Was the well properly decommissioned with bentonite grout?  YES  NO If YES, Indicate Date:                                          
 D8 Method Used to Estimate Well Yield:  Air Lifting  Bailing  Pumping Test (If test conducted, complete Pumping Test Record)

**PUMPING TEST RECORD AND GROUNDWATER QUALITY**

(All depths below ground, circle appropriate units)

**E1 Pumping Test Information**

Pumping Test Start Date: 20110724  
 Y Y Y Y M M D D

Static Water Level (SWL): 10.6 bags (m / ft)

Pump Intake Set at: 38.7 bags (m / ft)

Duration of pumping: 24 hrs      min

Final Water Level (FWL) at end of Pumping Test: 10.7 (m / ft)

**G1 GROUNDWATER QUALITY**

**Field Data**

Date Measurements Taken: 20110725  
 Y Y Y Y M M D D

Electrical Conductivity: 440 uS  
 pH: 7.84  
 Temperature: 4 °C

**Groundwater Type**

- Salty
- Sulphur / Egg Odour
- Organic Taste / Odour
- Metallic Taste
- Other:

**RECOMMENDATIONS**

Recomm. Pump Depth: 37 (m / ft)  
 Recomm. Pumping Rate: 40 usgpm (Lps / gpm)  
 If flowing, provide rate:      (Lps / gpm)

**Turbidity/Sand Content**

- Clear
- Slightly turbid/cloudy
- Moderately turbid/cloudy
- Turbid/cloudy
- Trace sand present
- No sand present

**Well Disinfection**

Was the well disinfected upon completion of the pump installation?  YES  NO

Briefly describe method of well disinfection.

per 2 liters bleach

**F1 Well Water Level Drawdown/Recovery DATA**

| Drawdown   |                      | Recovery   |                      |
|------------|----------------------|------------|----------------------|
| Time (min) | Water Level (m / ft) | Time (min) | Water Level (m / ft) |
| 0 (SWL)    | <u>610c</u>          | 0 (FWL)    | <u>12.94</u>         |
| 1          | <u>12.495</u>        | 1          | <u>12.05</u>         |
| 2          | <u>12.612</u>        | 2          | <u>11.909</u>        |
| 3          | <u>12.683</u>        | 3          | <u>11.835</u>        |
| 4          | <u>12.743</u>        | 4          | <u>11.771</u>        |
| 5          | <u>12.756</u>        | 5          | <u>11.742</u>        |
| 10         | <u>12.872</u>        | 10         | <u>11.651</u>        |
| 15         | <u>12.904</u>        | 15         | <u>11.615</u>        |
| 20         | <u>12.914</u>        | 20         | <u>11.604</u>        |
| 25         | <u>12.914</u>        | 25         | <u>11.596</u>        |
| 30         | <u>12.926</u>        | 30         | <u>11.599</u>        |
| 40         | <u>12.936</u>        | 40         | <u>    </u>          |
| 50         | <u>12.938</u>        | 50         | <u>    </u>          |
| 60         | <u>12.941</u>        | 60         | <u>    </u>          |

**Bacteria Testing**

Was a sample taken?  YES  NO If yes, indicate the name of the laboratory.

Date Sample Taken: 20110725  
 Y Y Y Y M M D D Yukon Environmental Health Services

**Chemical Analysis of Water**

Was a sample taken?  YES  NO If yes, indicate the name of the laboratory.

Date Sample Taken: 20110725  
 Y Y Y Y M M D D Exova

**WELL CONTRACTOR**

H1 Name of Contractor / Drilling Company: Impact Well Drilling  
 H2 Name of Driller(s): Brian Mac Dougal  
 H3 Address of Driller: Box 1025 White Y.T. Y1A7A1  
Brian Mac Dougal  
 Signature of Primary Driller  
 Y Y Y Y M M D D  
 Date Submitted to Dept. Of Environment

**CONSULTANT (if applicable)**

I1 Company Name: EBA  
 I2 Company Address: Unit 6 61 Industrial Road, Whitehorse  
 I3 Report Reference: W2310451  
 I4 Report Date: 2011108116  
 Y Y Y Y M M D D

**ADDITIONAL INSTRUCTIONS**

Upon completing this form, please mail or fax it to:  
 Water Resources Section (V-310),  
 Department of Environment,  
 Government of Yukon Box 2703,  
 Whitehorse, Yukon, Canada Y1A 2C8

Please feel free to contact us at:  
 Phone: (867) 667-3171, Toll free (in Yukon): (1-800) 661-0408, local 3171  
 Fax: (867) 667-3195 E-mail: Water.Resources@gov.yk.ca

Personal information contained on this form is collected under the authority of the Access to Information and Protection of Privacy (ATIP) Act, Section 29 (c) and will be used to compile a public database of well and ground water information. For further information contact the Manager of Hydrology, Water Resources at (867) 667-3223, toll free within Yukon 1-800-661-0408 Ext 3223.

I have read the above clause and understand the purpose for collection of personal information.

Signature of Well Owner