



THURBER ENGINEERING LTD.

November 3, 2016

File: 16080

Village of Bawlf
PO Box 40
Bawlf, AB T0B 0J0

Attention: Ms. Tracy M Stewart
Acting Chief Administrative Officer

**PROPOSAL
BAWLF WASTEWATER SYSTEM GROUNDWATER MONITORING PROGRAM
2016/2017**

Dear Madam:

Further to our recent email correspondence, Thurber Engineering Ltd. (Thurber) is pleased to submit this proposal to carry out a groundwater monitoring program at the Village of Bawlf's Wastewater System Sewage Lagoon ("Site") located in NE ¼ 25-45-18 W4M approximately one kilometre southwest of the Village of Bawlf.

It is a condition of this proposal that Thurber's performance of its professional services will be subject to the attached Statement of Limitations and Conditions.

1. BACKGROUND

Thurber conducted a hydrogeological program in 2016, Alberta Environment and Parks (AEP) reviewed Thurber's report¹. In their August 4, 2016 letter², AEP outlined that the groundwater wells are to be monitored twice per year, one spring and one fall season with water chemistry once per year.

2. SCOPE OF WORK

Thurber's proposed scope of work is as follows,

- Monitor depth to water in five groundwater wells in fall of 2016
- Monitor depth to water in spring and fall of 2017 in five groundwater wells
- Obtain groundwater samples for chemical analyses in fall of 2017
- Submit report summarizing water levels for 2016
- Submit report summarizing historical water levels up to fall of 2017 as well as a summary of groundwater chemical analyses for 2016 and 2017.

¹ Thurber Engineering Ltd, March 4, 2016. *Hydrogeological Assessment Village of Bawlf Sewage Lagoon. File 19-6835-1*

² Alberta Environment and Parks, August 11, 2016, *Bawlf Wastewater System groundwater monitoring Environmental Protection and Enhancement Act Registration No. 0000400-02-00*



3. METHODOLOGY

3.1 Water levels

Groundwater level measurements will be completed at all five (5) monitoring wells at the Site. Water level will be measured by water level tape in the fall of 2016 and then in the spring and fall of 2017. All measurements will be done from the top of casing of monitoring wells with reference to ground elevation.

3.2 Groundwater Chemistry

Groundwater samples for chemical analyses will be collected from all five (5) monitoring wells in the fall of 2017. Prior to the collecting samples all wells will be purged until dry and water will be collected using dedicated disposable bailers in each well. Groundwater samples will be placed in laboratory bottles supplied by the chemical laboratory and then stored in an ice chilled cooler for transportation to a CALA certified laboratory. Five groundwater samples (if water is present in all five wells) plus a duplicate sample will be analyzed for:

- Routine Potability
- Total Kjeldahl Nitrogen
- Chemical Oxygen Demand
- Total and Fecal Coliforms.

3.3 Report

The 2016 report will summarize the depth to groundwater from 2016 and provide the analytical data from Thurber's 2016 report. The 2017 report will provide a summary table of water levels and groundwater chemical analyses and include an interpretation of the groundwater flow direction and interpretation of the groundwater chemistry analytical testing.

4. PRICE ESTIMATE

The estimated price to carry out this project is summarized in Table 4.1 not including GST. Thurber's invoice will be based on time and materials of our professional and technical staff as per the attached 2016 Schedule of Rates.

5. SCHEDULE

We are available to undertake this investigation as soon as authorized. Thurber's 2016 groundwater report will be provided approximately two to three weeks after completion of the groundwater level measurements.



6. CLOSURE

We trust this proposal meets with your approval. If you have any questions or require further information, please contact us at your convenience.

Yours very truly,
Thurber Engineering Ltd.
Neal Fernuik, M.Sc., P. Biol., P.Eng.
Review Principal

Milan Butorac
Milan Butorac, B.Sc., P. Geol.
Project Hydrogeologist
/lg

Attachments

- Statement of Limitations and Conditions
- Table 4.1 – Price Estimate
- Thurber 2016 Schedule of Rates



STATEMENT OF LIMITATIONS AND CONDITIONS

1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT THURBER'S WRITTEN CONSENT AND SUCH USE SHALL BE ON SUCH TERMS AND CONDITIONS AS THURBER MAY EXPRESSLY APPROVE. Ownership in and copyright for the contents of the Report belong to Thurber. Any use which a third party makes of the Report, is the sole responsibility of such third party. Thurber accepts no responsibility whatsoever for damages suffered by any third party resulting from use of the Report without Thurber's express written permission.

5. INTERPRETATION OF THE REPORT

- a) Nature and Exactness of Soil and Contaminant Description: Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other persons making use of such documents or records with our express written consent should be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) Reliance on Provided Information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) Design Services: The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber should be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design detailed in the contract documents should be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) Construction Services: During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions in order to confirm and document that the site conditions do not materially differ from those interpreted conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

6. RELEASE OF POLLUTANTS OR HAZARDOUS SUBSTANCES

Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

7. INDEPENDENT JUDGEMENTS OF CLIENT

The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or others who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes but is not limited to decisions made to develop, purchase or sell land.



SCHEDULE OF RATES FEBRUARY 2016

Professional Services	Hourly Rate
Professional 7 (Chief Engineer & Specialist)	\$250
Professional 6	\$230
Professional 5	\$200
Professional 4	\$180
Professional 3	\$160
Professional 2	\$140
Professional 1	\$120

Technical Services	Hourly Rate
Technician 6	\$140
Technician 5	\$125
Technician 4	\$110
Technician 3	\$100
Technician 2	\$90
Technician 1	\$75

Disbursements	
Office Disbursements (communications, printing, engineers local travel, cameras, handheld GPS)	8% of Fees
External Disbursements	Cost plus 10%
Rental vehicles where off-road use is required	Cost plus 25%
Subconsultants	Cost plus 10%
Company Vehicle Use	\$65/day + \$0.65/km
Specialized Field Equipment	Project Specific Rates
Colour Printing and Plotting	\$3.50/ft ²

- ### Notes
- A 15% premium on the above rates will be charged for overtime when technician field work is requested on Saturdays, Sundays and Statutory Holidays.
 - Fees and disbursements will be invoiced monthly. Payment is due within 30 days of the invoice date.
 - Interest at 1.5% per month will be charged on overdue accounts.
 - These rates do not include G.S.T.



**TABLE 4.1
PRICE ESTIMATE
BAWLF WASTEWATER SYSTEM GROUNDWATER MONITORING PROGRAM**

Item	Fees	Disb'ts	Subs	Total
2016 Water Level (Fall)	\$ 550	\$ 400		\$ 950
2017 Water Level and Samples (Spring/Fall)	\$ 1,500	\$ 850	\$ 1,100	\$ 3,450
Report (Project Management 2016/2017)	\$ 4,100	\$ 350		\$ 4,450
Total (not including GST)	\$ 6,150	\$ 1,600	\$ 1,100	\$ 8,850