

Mentor's Name (See Note 2)

Present Address

Postal Code

Mentor's Phone No.

Mentor's Email

Note 1: Provision of home information is voluntary. See see Privacy Policy at www.apegm.mb.ca for further details.

Note 2: Under PIPEDA, you may not give any information other than the name, title, business address and business phone number of an individual without the consent of that individual. Please see Privacy Policy at www.apegm.mb.ca for further details.

2. Work Experience:

2.1 Please give a description of your Engineering/Geoscientific Work Experience for the period noted in question #1, **including** information in support of your responses to questions **2.2, 2.3, 2.4** and **2.6**. Append additional sheets as necessary.:

I have worked in the Geotechnical/Environmental Project Delivery Group at _____ for the past 6 months. In these months I have been exposed to a variety of work and experiences in both the geotechnical and environmental fields.

I applied theory in my work at Acres as follows:

- I analyzed and interpreted field logs and lab testing data in order to produce composite logs of both soil and bedrock layers for a borehole investigation program. This required an understanding of the different field and laboratory tests along with their significance in describing and characterizing soil layers. I produced an Excel workbook that interpreted grain size analysis results to describe the soil layers.
- I analyzed data from a pumping well test by hand, in Excel, and using a software analysis package to characterize the aquifer properties and determine the suitability of the aquifer to meet the client's water needs. This involved extensive research into theories of groundwater movement and water quality requirements. The drawdown in the wells was not consistent with theoretical predictions, and therefore a great deal of creative thinking and research was required to attempt to explain the behavior of the water flowing in the aquifer. It was discovered that the layout of the wells was likely partially responsible for the abnormal data, showing me the importance of thorough research in planning and executing testing programs. I was also responsible for organizing and condensing the results into a meaningful report.
- I calculated the amount of total suspended solids introduced into a river system due to the construction of a series of cofferdams. I produced an Excel worksheet to ensure consistency in all calculations and allow quick changes to be made to the input data without requiring recalculation of all the formulas.
- In organizing a test pitting program, I was required to plan the laboratory testing program. This involved research into applicable standards for concrete aggregates and granular materials and deciding which tests would be the most useful in giving the results required to make informed decisions. The testing program would also verify data obtained by past testing programs and confirm the suitability of the sites for the client's purposes.
- I implemented the test pitting program that I had organized and was one of the field inspectors supervising the work that was conducted. This required flexibility and creativity as challenges were presented that had not been anticipated in the office.
- In organizing a test pitting program, a significant amount of background research was required to rank the sites and determine which should be the focus of site visits and ultimately put forward as prospective sites for field testing.
- I verified data inputted into a large database to ensure its accuracy for future design and construction purposes at the project site, requiring significant attention to detail.

I gained practical experience in the following ways:

- I reviewed videos of a diving inspection along a river in order to characterize the materials of the river channel for a cofferdam construction. This involved summarizing and organizing the data in a meaningful fashion.
- I organized a test pitting program that involved site visits and test pitting with a backhoe. The program also included surveying with a hand-held GPS unit.
- I have been responsible to produce drawings in Autocad for a variety of projects.
- It is challenging to convey information concisely in a meaningful manner to a non-technical audience as I write reports and produce spreadsheets.
- I conducted water quality sampling in a dust cell.
- I observed the construction of a hazardous waste containment unit. This gave me a better understanding of the construction process and demonstrated some of the challenges in transmitting a design from paper to its actual implementation.
- In calculating the TSS introduced into a river system due to the construction of a complex network of cofferdams, I was able to observe how the construction of one cofferdam affected flows and TSS in other areas of the river. The flows were modified based on which cofferdams were constructed first, demonstrating that the calculations and factors could not be determined in isolation but had to be considered as part of a system.
- In many of my projects, I recognized that the assumptions and data used in calculation and design are approximate, requiring factors of safety or conservative design in order to ensure the safety of the public. I also have recognized the role of engineering judgment in many projects due to the imprecise nature of geotechnical work, since it is difficult to characterize the soil of an entire area based on a few samples.
- A great deal of my work at Acres has been on small components of extremely large infrastructure works scheduled for in-service dates of 2017 or later. This has exposed me to the level of detail and complexity inherent to these projects, as well as demonstrating how the design, construction and operation of these works are a system requiring cooperation and communication between different disciplines.
- In much of my work at Acres, I have been exposed to the seasonally dependant nature of planning and executing field investigations and construction projects. Failing to conduct a field investigation program early in a season can prevent the program from being completed, delaying calculations and design due to incomplete data. This affects the in-service dates of projects and demonstrates how time is a factor in the engineering process.

I was exposed to various aspects of engineering management including:

- Planning
 - I organized and developed a test pitting program in which I was responsible to schedule a laboratory testing program, arrange utility clearances, hire contractors and conduct site investigations. I ensured that all end goals of the test pitting program had been met and that the laboratory testing program was thorough. I also ensured that enough samples were taken for all the laboratory tests that were required.
- Scheduling
 - I was required to submit work in a timely manner, to organize myself to accomplish the most important tasks first and to submit items by deadlines.
 - I organized and developed a test pitting program in which I ensured that all activities were accomplished within a fairly short time period. I was cognizant of time constraints as winter was approaching and the

client wished the job to be completed as soon as possible. I organized the various tasks to finish all details of the program as quickly as possible

- Budgeting
 - In the organization of a test pitting program, I had to make decisions about which methods of investigation to employ, logistics arrangements, and equipment rentals and purchase in order to minimize cost to the client without compromising the quality of data gathered from the program
 - As my time is billed to projects which have specified budgets, I am always aware that I need to use my time well in order to accomplish the most work in the least amount of time.
- Supervision and Project Control
 - In organizing a test pitting program, I was responsible to supervise all aspects of the project and ensure that all tasks were accomplished. I managed who would rent and purchase equipment required for the project and ensured that human and equipment resources were allocated in the most effective and efficient manner possible
 - In many of the tasks assigned to me, I had to ensure that my methodology and results were clear so that my superiors understood what I had done and could communicate it to the clients. This allowed me to develop the ability to step back and look at what I had done as a whole, summarize the results and methodology, and make sure that my supervisors were able to explain them to others. This skill is very similar to that used in supervision and project control, although in this case I was communicating to my supervisors instead of supervising others.
- Risk Assessment
 - I prepared and reviewed several health and safety plans for site visits in order to minimize the risk to myself and other people working on projects
 - I contacted and met with representatives from various utilities to eliminate the risk of striking underground lines or pipes during a test pitting program
 - I reviewed safety requirements for excavations, working in isolation, driving, and other safety hazards in order to minimize the risk to myself and other people working on projects.
 - I have participated in several safety training courses in order to become aware of and mitigate risks present in various aspects of my work.

During my work, I was required to make decisions based on an engineer's professional and ethical responsibilities to:

- The public: Most of my projects have been for Crown corporations with end uses that will benefit the general public. I work to make good decisions that will result in the best possible final design. I also try to use my time in the most efficient manner in order to best use the public resources that are paying for my work.
- The profession: I exercised due diligence in doing my work in a conscientious manner so that my results would be as accurate as possible.
- The client: I had to ensure that my research, calculations and reporting conformed to the clients' priorities and expectations.
- Co-workers: I worked to ensure that my work would be useful, relevant and helpful to my co-workers as we worked on projects as a team. This required attention to detail and conscientious work habits.
- The environment: In several projects, a focus was taken to minimize any adverse environmental impacts. This required a review of applicable environmental guidelines and a ranking of alternatives for a project that included a focus on environmental impacts.

Note: Supervisor and Mentor assessments are to be shown by indicating either **Yes** or **No** in the space following the question:

Do you agree with the answer provided by the MIT?

If you are a professional member supervisor or a mentor, complete the Professional Member field. If you are a non-member supervisor, complete the non-member field. Comments should be made as applicable especially if the answer is No.

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

2.2 While undertaking the work experience indicated in 2.1, I have applied theory in:

- i) Analysis/Interpretation X
- ii) Project Design & Synthesis X
- iii) Testing/Verification X
- iv) Implementation X
- v) Other(s) _____
(please identify)

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

2.3 While undertaking the work experience indicated in 2.1, I obtained practical experience by:

- i) Studying or being exposed to existing engineering/geoscience works X
- ii) **For EITs:** Applying designs as parts of larger systems X
- iii) **For GITs:** Integrating geoscience data analysis with larger projects/systems _____
- iv) Experiencing the limitations of engineering designs/geoscience projects X
- v) Experiencing time as a factor in the engineering/geoscience process X
- vi) Other(s) _____ (please identify)

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

2.4 While undertaking the work experience indicated in 2.1, I was exposed to the following areas of engineering/geoscientific management:

- i) Planning ii) Scheduling iii) Budgeting iv) Supervision
- v) Project Management vi) Risk Assessment

Other(s) _____
(please identify)

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT? Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____ Comments: _____ _____

2.5 During this period, my communications skills improved, as follows:

(i) Oral presentations

I have joined a Toastmasters club at my work and have had the opportunity to present two prepared speeches and numerous short impromptu speeches. I have spoken at nearly every meeting and have improved my public speaking skills significantly. Through interactions with clients, contractors and other people associated with my projects, I have learned to ensure that I have specific goals for my conversations in order to communicate my project goals, objectives and questions clearly and concisely.

(ii) Written documents

I have obtained extensive report writing experience over this period. I have prepared and/or edited reports, work plans, abstracts and safety plans. It has been a challenge to communicate technical ideas in a manner that a non-technical audience can understand. I have also learned to summarize data and design assumptions in a concise manner with meaningful conclusions. I have translated abstracts into French and also translated Spanish documents into English for a project based in Latin America.

(iii) Interaction with others

I improved my skills in interacting with others as I work in a team environment where both my own and my coworkers opinions are valuable and important for accomplishing our project goals. I have learned to listen well and ask good questions to ensure that I understand what my supervisor's expectations are for my project.

Supervisor Assessment: Do you agree with the answer provided by the MIT? Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____ Comments: _____ _____
--

2.6 During this period, I was required to make decisions based on an engineer's/geoscientist's professional and ethical responsibilities as follows, to:

- i) The public
- ii) The profession
- iii) The client and/or employer
- iv) Co-workers
- v) The environment

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

2.7 During this period, I had to consider the social implications of my work in the following areas:

Many of the projects I have worked on involve the construction of hydroelectric dams, which are publicly funded and will be used by the Manitoban public. Hydroelectricity has an extremely large impact on society in Manitoba, as it is the primary source of power for the province and revenues from exports are used to generate additional income. The work I do in enabling the construction and development of this power source thus has important social ramifications.

In participating in a sustainable development workshop, I was able to see how the mining industry in particular can have a positive impact on the social welfare of the communities in which its projects are based. I hope to do more work in this area, as I am very interested in mitigating the negative social and environmental impacts and facilitating positive impacts of engineering projects.

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

3. Personal Development

3.1 Examples of my ability to work effectively as part of a team, during this period, include:

I work in a team atmosphere and draw daily on the knowledge of my peers and supervisors to complete my tasks. As my skills and knowledge base develop, I can aid my coworkers when they have questions and take pleasure in helping others. Since the projects I work on are so large, teamwork is essential for successful completion of tasks. I frequently help my supervisor to prepare graphs and spreadsheets for clients, and have helped co-workers complete reports on numerous occasions. In conducting a test pitting program, two coworkers and I worked as a team to stake out locations for digging, collect samples and log results.

Supervisor/Mentor Assessment: Do you agree with the answer provided by the MIT?

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

3.2 Examples of my ability to assume responsibility during this period include:

In organizing a test pitting program, I was responsible to develop an extensive selection and screening process to select the sites that would be tested. Over the course of the project, I made mistakes in how I defined my criteria which forced me to accept responsibility for my work and become more intentional in asking for guidance.

As a person of integrity, I always feel a responsibility to ensure that my work is as accurate as possible in each project that I complete.

Supervisor/Mentor Assessment: **Do you agree with the answer provided by the MIT?**

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

4. I have shown progress since the last report (where applicable) as follows:

I have become a much more independent and confident worker over the past six months. I am more able to take initiative and be creative when presented with problems.

Supervisor/Mentor Assessment: **Do you agree with the answer provided by the MIT?**

Professional Member (Yes/No) _____ Non-Professional Member (Yes/No) _____

Comments: _____

5. I consider myself to be lacking in exposure to, or requiring improvement in, the following areas:

I have not done a great deal of design work in the past six months. However, I recognize that a base set of skills is required before design work can be undertaken and know that it takes time to develop these skills.