General Project Information

Team Vision Statement

We are committed to providing engineering solutions for the concerns within the community. As upcoming master planners and builders, we will use our engineering knowledge and expertise to deliver sustainable results for today's engineering challenges.

Purpose

Our team purpose is to meet the needs of the Church of Jesus Christ of Latter-day Saints with regards to reconstruction of the Provo City Tabernacle. Our goal is to use the engineering tools and knowledge acquired through coursework and research in order to deliver plausible solutions towards the goals that the LDS has.

Objective

Design a constructible, lasting, and cost efficient foundation for the restoration of the Provo Tabernacle Temple.

Scope

The scope of work will require the research and planning of various options in which a foundation and basement could be constructed for the project. With provided technical information, we will design and plan for a support system to effectively withstand the demands placed on the project. Such demands will include the building loads, an impeding water table, and most importantly keeping the walls in place while excavating and building the foundation. Additionally, our solution will include waterproofing methods and systems of construction. The completion of this project will require planning and analysis to determine the best possible solution.

General Information

Our project sponsor is **Andy Kirby**. Andy works for The Church of Jesus Christ of Latter-day Saints on the Temple Committee. He is the project manager for all the temples being built by the Church. Below is his contact information:

Phone: 801-699-1336
Email:andykirby@ldschurch.org

Because of Andy's busy schedule, he would prefer to be contacted by email solely by the graduate student mentor.

Robert Godfrey will act as our mentor or project manager. Along with helping and guiding our team, he will also be the one who contacts our project sponsor if the need arises. Robert's contact information is as follows:

Phone: 801-678-9235
Email: godfrisimo@gmail.com

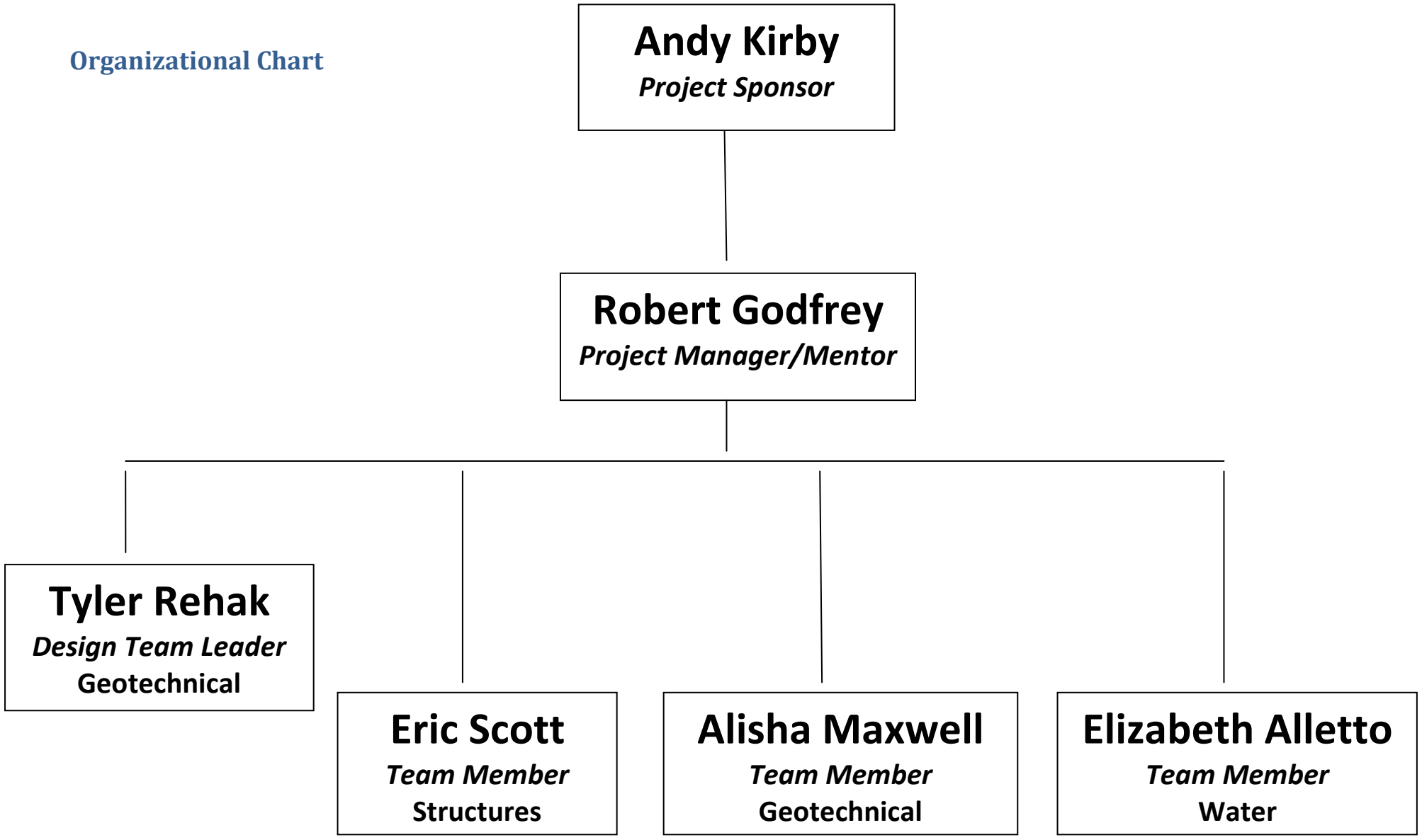
Either mode of communication is acceptable to Robert.

Along with our project sponsor and manager, we have also enlisted the help of a professor – **Kyle Rollins** has special interests that directly relate to our project. He is a geotechnical engineer that specializes in foundations and earthquake design.

Email: rollinsk@et.byu.edu
Office Hours: Whenever he is in his office

Dr. Rollins is willing to help whenever his door is open and prefers meeting in person.

Organizational Chart



Scope of work summery, or work plan

Summarize key tasks and subtasks

- Meet with contacts and discuss what is wanted.
- Acquire loads and soils report
- Design footing/foundation to withstand loads
- Method of construction dewatering and long-term dewatering
- Design method of keeping footing from uplifting from water pressure
- CONSTRUCTABILITY

Show relationships of tasks to key disciplines

- Designing a foundation will require foundation design, soils, concrete, and structures
- Constructability will require all the knowledge we have learned from all of our engineering classes, research, and problem solving skills.

Necessary technical advice (professor help, mentor help)

- Dr. Rollins for foundation design, soils, and constructability
- Dr. Fonseca for concrete strength
- Todd Ross from Hayward Baker
- Tom Rehak for constructability
- Other local engineers from for constructability

Other materials and resources (site visits?) required

- Site visits before, during and after project completion.
- Computer programs such as Revit 3D Modeling and AutoCad
- Dr. Jones Excel–deep well dewatering program

Project Schedule

Date	General Tasks	Deadlines
Jan 22-28	Research footing designs	Submit list of necessary data to project sponsor
Jan 29-Feb 4	Research footing designs	
Feb 5-11	Research footing/water sealing/uplift	
Feb 12-18	Research water sealing/uplift/constructability	
Feb 19-25	Research constructability	
Feb 26-Mar 3	Research constructability/Presentation preparation	Choose Design Method
Mar 4-10	Analysis of Replacing Existing Foundation	Project Update Report Mar 5
Mar 11-17	Analysis of Micropiles	
Mar 18-24	Analysis of Walls/membraning	
Mar 25-31	Finish loose ends	
Apr 1-7	Prepare poster/presentation	
Apr 8-14		Final Project due Apr 9

Responsibility Matrix

	Geotechnical Computer Software	Structural Computer Software	Project Update Report	Research footing designs	Research waterproofing	Research constructablity	Constructablity Design Manager	Final Presentation
Alisha Maxwell	x		x	x	x	x		x
Elizabeth Alletto			x	x	x	x		x
Eric Scott		x		x	x	x		x
Tyler Rehak				x	x	x	x	x

Hours	Task
4	Request data from Andy
	Receive Data from Andy
48	Footing Designs
24	Water seal/permeability
54	Constructability
6	Presentation Preparation
4	Presentation
44	Basic Analysis
48	In Depth analysis on design choice
20	Presentation/Reports
4	Final Project Due

Project Budget

In determining our design budget for our project, we hope to use several different factors to govern how much we would charge for our services. Several items will be discussed in the following paragraphs that lead to an overall determination of what a realistic design budget for our project would be.

By assessing the knowledge and skills of our team members, we agree that our level of experience is relatively low in comparison to other firms. Using one of our contacts, we learned that entry level Civil Engineers without a master's degree look at a starting salary around $50,000 per year. We estimate that the project will require 4 months out of the year to complete the design. Furthermore, we estimate that an average of 6 work hours per week per team member will be spent on the project. Therefore, we would reduce the $50,000 per year for an entry level engineer by factors of 1/3 to account for number of months of work and by 24/40 to account for the weekly time put into the project. Based on these calculations we would estimate to charge $10,000 for the engineering of the project.

Another method of estimation would be based on an hourly wage for the various members of the team. Assuming that all the members of our team have passed the fundamentals of engineering exam, we would hope to charge a flat rate of $55 per hour of labor. Working for 6 hours a week, over a 16 weeks period, we hope to charge a rate of $5280 per team member, or a total of $21,120 for the duration of the project.

Team Member	Position	Hourly Rate	Estimated Projects Hours
Tyler Rehak	Team Leader	$55	72
Alisha Maxwell	Project Manager	$55	72
Eric Scott	Software Technician	$55	72
Elizabeth Alletto	Communication Specialist	$55	72

All of the budget costs for the team members include overhead costs. Such overhead would be used to pay for necessary resources for project completion. Mentioned resources would include a project poster, workplace resources, and transportation demands for site visits.

Communication Plan

In order to complete our project on time each team member will spend six hours a week working on our project. Three of the hours will be as a group, accomplished from 3pm to 6 pm every Monday in the Clyde or Fletcher computer lab. One of the many goals during these hours will be to organize ourselves for the week. We will discuss what each of us will need to be doing and accomplishing throughout the coming week to further our progress. Each member will need to complete the last three hours on individual time sometime during the week.

As a team, we have come up with an easy and efficient way to document our hours worked. We have formed a Google-doc shared between all the team members as well as our project manager. Set up on this document is a daily schedule where we can record our hours worked as well as give a short explanation of what we accomplished. Also, to make things simple for our project manager, it adds up our hours at the end of each week.

Throughout the duration of this project, we will heavily rely on emailing and texting to keep our group organized. With such communication we will be able to keep every team member informed of critical and necessary information.