Abstract

Malawi is often regarded as one of, if not the, poorest countries in the world. Reed and Megan traveled to one of the least developed areas of Malawi; the Karonga District. An issue that plagues the region, and the country as a whole, is the lack of access to secondary education. Determined to Develop, a non-profit in the Karonga area, has created an initiative that plans to address this issue, by building a new multi-school campus. The campus will include a boys high school, girls high school, and a technical college. The 110 acre lot that will be the location of the schools, was surveyed this summer to assist in the planning process. In addition, numerous buildings were modeled in 3 dimensional software. From those 3D models, detailed technical drawings were created.

Project Description

Surveying

- A total station was used to collect angle and distance data of various points throughout the 110 acre site.
- Excel was used to calculate the coordinates and elevations of the 3,105 data points.
- The point data was imported into AutoCAD Civil 3D to create a topographic map of the site.

Building Design

- Most critical building was the Garage/store as it will be the 1st building constructed.
- The boys’ hostel was designed based off of current dorms at Chaminade Secondary School.
- A long-term volunteer and executive house was designed to be built at Maji Zuwa, right on the lake.
- An updated design was created for Luvilimbo Nursery, which was restarting construction.
- With a design similar to Luvilimbo, a Women’s Empowerment center was modeled.
- A water tower was designed and modeled to hold (4) 5,000 liter tanks on the high school site.
- Discussions around the cultural norms and expectations were crucial to have design that would be accepted and successful.

Results & Discussion

Surveying

- A topographic map of the 110 acre school site was completed.
- The map shows the hills and valleys of the site.
- It will provide data on the best locations to place the school buildings throughout the campus.

Building Design

- Some of the successful models are shown below.

Acknowledgements

A special thank you goes out to the following people for making this project possible:

- ETHOS Department
- Matt Maroon, founder of Determined to Develop
- Farlington and Taleka for helping with the surveying
- The Determined to Develop staff and volunteers

Introduction

- Malawi is the poorest country in the world, and most of their supplies come from agriculture and the large freshwater lake, Lake Malawi.
- The opportunity for secondary education is scarce in Malawi.
- Determined to Develop, a nonprofit organization, aims to develop Malawi by focusing on Education/Youth Support, Health and Nutrition, Women’s Empowerment, and Environment issues.
- Determined to Develop made plans to build a school campus for boys and girls secondary education.

Recommendations

- The terrain data collected from the survey should be used to create a master plan of the school site.
- Physical calculations need to be done on the structural integrity of the current building designs.
- Technical drawings can be used to aide in the construction process.

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