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**27 March 2017**

**DIGITIZING THE SAN MARCOS CEMETERY AND LOCATING THE NEW TELECOMMUNICATIONS TOWER**

**Prepared for:**



**Prepared by:**

**Bull’s Eye GPS and Suitability Services, INC**

**27 March 2017**

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7. **Introduction**
   1. *Summary*

This report was composed by Bull’s Eye GPS and Suitability Services, Inc to detail the progress of our GPS gravesite inventory as well as the location analysis of the new telecommunications tower in the Tower Addition of the San Marcos City Cemetery. Proceeding our presentation on February 27, 2017, we began to work on our project immediately. However, because of some concerns with the old methodology taking too much time we have had to formulate a new one, which was approved by our supervisor and client. This progress report reintroduces the purpose and scope of our project and informs the interested organizations of our advancements.

*1.2. Purpose*

The purpose of this project for Bull’s Eye GPS and Suitability, Inc. is to create a GPS inventory of the existing and new grave sites and to find a location for the new telecommunications tower of the Tower Addition section of the San Marcos City Cemetery. The GPS inventory of the grave sites will allow families to locate their loved ones in an easier manner and the new telecommunications tower will provide services to first responders to the City of San Marcos as well as all of Hays County.

*1.3. Scope*

The study area for this project will remain the same as our initial scope in the project proposal. The study area will still be focused on the Tower Addition located on the west boundary of the property and residing along the Primrose PL road of the San Marcos City Cemetery. This section can also be identified with the large white water tower within the section, hence the name of the section the Tower Addition. Within the Tower Addition we will map blocks 1-32, 34-41, 43-50, 52-59, 61-68, 70-77, 79-86, 88-95, 97-104, 106-113, 115-122, 12 4-131, 133-140, 142-149, 151-158, 160-167, and 169-176. We will map out the grave sites within each block which contains either 4 or 8 graves. Bull’s Eye GPS and Sustainability, INC. will complete the final map no later than April 26, 2017.

**2. Tasks**

*2.1. Work Completed:*

* Slightly behind on GPS field work from initial reporting period. We have been able to refine our methodology to utilize control points to provide accurate gps mapping of the grave block sections.
* We have created to a georeferenced image as a trial run of the entire cemetery using the already existing control points. Since the reference off by no more than five feet we are going to have to gather more points in order to continue with georeferencing before we digitize the blocks and graves of the Tower Addition.
* Created a buffer of 130 feet around each proposed tower location. It has been determined that the fall space on both tower locations will not be an issue.

*2.2. Present Work:*

* Field work gathering control points at the City of San Marcos Cemetery, specifically located near the Tower Addition.
* Relevant data for the tower addition spot selection.
* Individual grave block measurements

*2.3. Work scheduled:*

* Find a DEM for tower addition in order to analyze the elevation of both proposed locations for a new telecommunications tower. To ensure our findings, we will also use contour data to confirm that elevation data is accurate.
* Digitizing the Tower Addition at the block and grave level, confirming a location for the new telecommunications tower, and finishing our final map.

**3. Challenges and Concerns**

One challenge that we have faced during this project so far is the atmospheric conditions we have been having the past weeks. This has created difficulty in gathering GPS points needed in order to digitize the data. So, for us to gather all the required points is going to require us to rely on a slightly modified methodology that requires gathering more control points to accurately georeference GPS coordinates to new grave block sections that will be added later on.

Our greatest challenge has involved learning how to use the Trimble GPS unit. Our very limited knowledge of GPS and GIS has severely hindered our progress, and has spurred us to work on discovering a new methodology. Because no one in our group, or even in our class has taken a GPS & GIS course we lack many resources to recreate the methodology of the group that started this project before us. Even with tutorials and online videos we still have trouble using the Trimble GPS unit and decided to adopt a new methodology, which was approved by our supervisor and client.

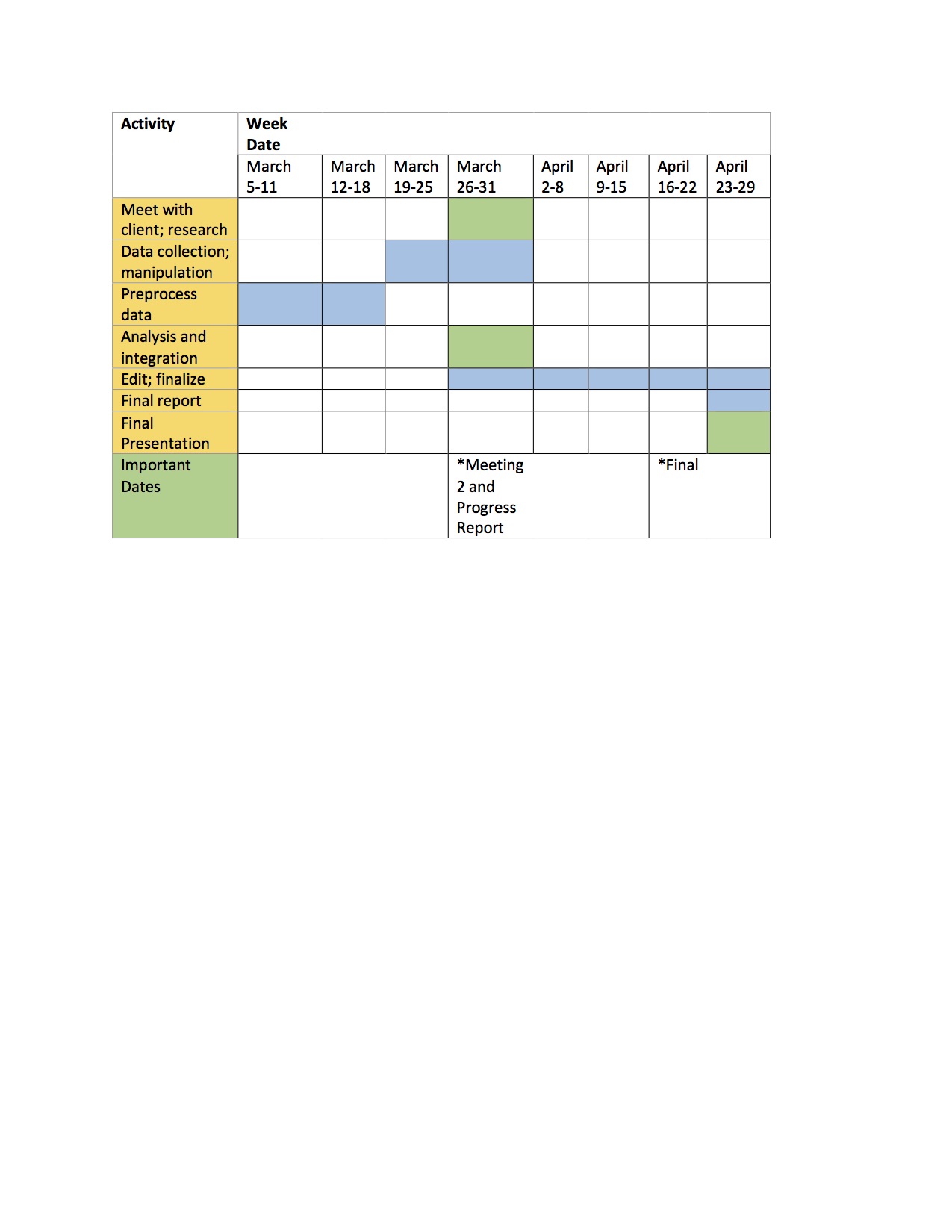
By using the survey of the City of San Marcos Cemetery created by BEC-lin Engineering, we can georeference this survey with the given aerial imagery and control points in order to overlay the location of both blocks and graves and digitize their vectors from there. This new methodology will be much easier to learn and adapt to than using the methodology developed by the Super GPS Bros, who spearheaded this project in Fall 2016.

A concern we may have is if the georeference image does not line up with the aerial imagery, this can be mitigated with collecting more control points closer to tower addition to avoiding warping of the image and being able to have accurate and precise overlay of the survey.

Another concern is the scope of the work. We are still prepared to digitize the entirety of the Tower Addition and without a doubt will have a confirmed location for the new telecommunications tower. However, we will stick with the current scope as of right now and if need be will discuss minimizing the scope with The City of San Marcos no later than April 12th, 2017.

**4. Revised Timeline**

Due to the change in our new methodology, our timetable has changed and our digitization process has been extended.

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**5. Conclusion**

Bull’s Eye GPS and Suitability Services, INC. have faced some challenges throughout the project so far. Our biggest hindrance has involved mastering the GPS aspect of this project. However, based on the new methodology of this project we believe that digitizing the Tower Addition is still a feasible goal. Once we accurately georeference the survey we can begin digitizing at the block and grave level. Our initial slow pace may make us unable to complete the current scope of this project however we have measures to ensure we dedicate enough time to finishing the project and have selected a deadline to decide if the scope is still realistic.

The new telecommunications tower location will be confirmed by the end of our analysis. A DEM is in the works of being concerned, and we can check our work by using contour data. Although based on other factors, such as fall space, knowledge we’ve acquired on budgeting and land use, and other more intuitive analysis we have an idea of where the tower should be placed.

**6. Participation**

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| --- | --- |
| **Name, Position** | **Task** |
| Molly Coryell, Project Manager | Editing, formatting, detailing new methodology, conclusion, challenges and concerns, timetable section |
| John Dayton, GIS Analyst | Tasks, Challenges & Concerns, Time scale |
| Andres Segovia, GIS Analyst | Summary, Purpose, timetable image |
| William van den Boom, GIS Analyst | Scope, Tasks |