Proposal for:

Prochnow Auditorium Rigging
317 W Dupont Ave, Flagstaff, AZ 86011

Prepared for:

Northern Arizona University
Department of Facilities Services
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Attn: Joshua Spear

Submitted by:

O.A.T Structural Engineering
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December, 13th 2022

TO: Robin Tuchscherer, PhD., P.E., S.E., Ben Dymond, PhD., Joshua David Spear,

Thomas Charles Eberly

FROM: Justin Portillo-Wightman, Theo Quax, Jose Espinoza, Amy Ajungo

CC: Robin Tuchscherer, PhD., P.E., S.E.

DATE: December 13, 2022

SUBJECT: Structural Analysis of Prochnow Auditorium Rigging

Hello,

This document contains the project understanding, the scope of services, and the project schedule for the 2022-2023 Prochnow Auditorium Rigging Capstone Project. The Project Understanding section contains the purpose of the project, background information, constraints and criteria, technical considerations, exclusions, and stakeholders. The Scope of Services lists out the tasks which will need to be completed in order to complete the project. The Project Schedule consists of a Gantt Chart that exhibits each task and their timeline. The start and finish dates for this project are between January 17th and May 12th of 2023. The Staffing Plan details all the staffing roles and the total amount of hours and that will be distributed among them to complete the project. The Cost of Engineering Services includes the total cost of personnel, supplies, and equipment. The total that was calculated is $70,564.

If you have any concerns or questions, reach out to any of the team members.

Thank you for your consideration,

Sincerely,
Justin Portillo-Wightman, @jrp498@nau.edu
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Table of Contents:

1.0 Project Understanding **1**
1.1 Project Purpose 1
1.2 Project Background 1
1.3 Technical Considerations 4
1.3.1 Challenges 5
1.3.2 Constraints and Criteria 5
1.4 Exclusions 6
1.5 Stakeholders 6
1.6 Timeline 6

2.0 Scope of Services - Major Technical Tasks **7**
Task 1: Preparation for site visit 7
Task: 1.2 Analyze Existing Plans and Specifications 7
Task: 1.3 Code Review 7
Task: 1.4 Plan for Site Visit 7
Task 2: Site Visit 7
Task: 2.1 Take Photographs 7
Task: 2.2 Measurement Procedure 8
Task: 2.3 Identify Existing Loads on Rigging 8
Task 3: Structural Analysis 8
Task: 3.1 Classify and Document Potential Dead & Live Loads 8
Task: 3.2 Create a 3D Model & Analyze 8
Task: 3.3 As-Built Drawings and Load Map 8
Task: 3.4 Assess Results of Analysis 9
Task: 3.5 Identify Optimal Load Placements 9
Task 4: Project Impacts 9
Task 5: Project Deliverables 9
Task: 2.5.1 30% Deliverables 9
Task: 2.5.2 60% Deliverables 9
Task: 2.5.3 90% Deliverables 9
Task: 2.5.4 Final Deliverables 9
Task 6: Project Management 10
Task: 6.1 Meetings 10
Task: 6.2 Schedule 10
Task: 6.3 Resource Management 10
Exclusions: 10

3.0 Project Schedule **11**
3.1 Gantt Chart 11
3.2 Discussion 12

3.2.1 Total Duration 12
3.2.2 Major Tasks 12
3.2. Critical Path 12

4.0 Staffing Plan 12
4.1 List of Staff Roles and Qualifications 13
4.2 Personal Hours 13

5.0 Cost of Engineering Services 15

6.0 References 16

7.0 Appendices 17

Table of Figures:

Figure 1.1: State View 1
Figure 1.2: Satellite View 2
Figure 1.3: Outside View 2
Figure 1.4: Outside View 2
Figure 1.5: View of Stage 3
Figure 1.6: View of Existing Rigging from Below 3
Figure 3.1: Summarized Gantt Chart 11

Table of Tables:

Table 4.1: Staffing Hours 14
Table 5.1: Cost of Engineering Services 15

1.0 Project Understanding

1.1 Project Purpose

The purpose of this project is to analyze the existing rigging above the stage at the Prochnow Auditorium. Our team will inspect, model, and analyze the existing rigging to determine the loading limits so the client knows where and how much load they can apply for future use. The analysis will account for the current loads applied on the structural framing as well as the predicted loads of future users. Once the report is finalized the client will have documentation indicating the capacity of the rigging. In cases where a future user may modify the current arrangement of the rigging, the client will be able to provide the future user with approval and limitations based on the findings of this proposed plan.

1.2 Project Background

Erected in 1951, the Prochnow auditorium is located in the city of Flagstaff, Arizona. Referenced below.

Figure 1.1: State View [1]

More specifically, the auditorium can be located at the north most point of the NAU campus off of 317 W Dupont Ave, as seen in the Figure below.

Figure 1.2: Satellite View [1]

The Prochnow Auditorium shares its building with the 1899 Bar and Grill, although it should be noted that they are separated into their own compartments within the overall building structure. Figures 1.3 and 1.4 show outside imagery of the joint building structure.

Figure 1.3: Outside View [1]

Figure 1.4: Outside View [1]

The rigging system our team will analyze for this project is located above the stage, as presented in Figure 1.5 and Figure 1.6.

Figure 1.5: View of Stage [2]

Figure 1.6: View of Existing Rigging from Below [3]

Member parts for the rigging system can be seen highlighted in Figure 1.6. From a cursory viewing of the rigging, the structural system appears to be made up of a grid of I-beams. I-beam girders are attached to the wall above the opening of the stage, perpendicular to the length of the stage. These girders are cross membered by slightly smaller I-beams and are welded together. This creates a grid which allows for loads to be hung from the cross members. Figure 1.6 also displays some of the loads applied to the rigging system. The loads present are curtains, a drop down movie screen, pulley system, and certain light fixtures. Special permission is required from our client in order to access the stage and gather data.

1.3 Technical Considerations

Completing this project will require a skillset in the following technical areas. The main challenge and most complicated technical area involving this analysis will be the calculations performed according to the most recent building code.

Key Tasks:

- Calculations
    - Dead load, live load, factored loads, shear forces, moments, and axial loads are calculations that will be performed to complete this project.
- Material Properties
    - Material Properties will be needed to determine the mechanical properties like yield tensile strength, modulus of elasticity, et.
- Visual Inspection
    - The visual inspection is needed to ensure the same information on the plans correlates directly to the existing structure.
- Modeling
    - The rigging will be modeled through a structural engineering software for analysis or design.
- Evaluation
    - Structure will be evaluated based on bearing capacity of the rigging.
- Final Report
    - A compilation of the methods and summary of results along with concise documentation of the bearing capacity and locations for placement load on the rigging's components.

A visual tour and inspection of the current condition of the auditorium's rigging will also need to be conducted. Identifying wear, corrosion, or any other factors that would affect the structural integrity of the rigging will need to be carried out. Recognizing these signs will be a significant part of what needs to be done.

The next part of technical work that will need to be undertaken will be creating a model of the existing rigging with the aid of computer drafting software such as AutoCAD and Risa 3D. Photographs and written analysis will supplement a computer drafted structure to fully convey the nuisances and overall scope of the rigging.

From there engineering judgment will be used to determine whether theoretical calculations conducted are an accurate representation of what the rigging structure can physically hold. Calculations do not account for wear due to use and no doubt the structure will not be able to withstand theoretical loads safely. This judgment will require a knowledge of factors of safety as

well as previous experience in the field of rigging, most likely under the guidance and assistance of a technical advisor.

Once this analysis has been completed a cohesive and detailed technical report will be created and delivered to the client. This report will include all written analysis, calculations, and any insight all surrounding the structural analysis of the rigging in Prochnow Auditorium. This report will be astute, comprehensive, and written with the professionalism of a practicing engineer presenting to a client.

1.3.1 Challenges

The challenges that will influence the project are coordinating site visits, utilizing equipment, creating an exact 3D model of the rigging, and assuming the correct future loads that may be applied. The auditorium has a set schedule of events therefore, the team must coordinate site visits accordingly. Along with working with the schedule, the team must also coordinate with facility services to have access into the building. There are no as-built drawings and therefore, the team must confirm dimensions between the plans and actual structure. The team will need to use equipment such as scissor lifts, headlamps, and measuring tapes to successfully measure the members. Another challenge is to create a model that identically represents the existing rigging. The rigging has many components that must be considered. The users of the auditorium are very diverse therefore, it will be a challenge to accommodate all future users since they all may have different uses of the rigging. To address these challenges, the project team will identify potential load points that will be suggested in the report.

1.3.2 Constraints and Criteria

Criteria of this project will be primarily, safety of users inspecting the structural analysis and ensuring safety of all future users of Prochnow Auditorium. This will require proper safety wear as advised by Prochnow staff as well as adhering to their safety guidelines. This will also involve a rundown of how to use equipment such as scissor lifts to measure and photograph the rigging at larger heights. This will most likely be from a technical advisor or whomever the equipment is rented from.

The next criterion that will need to be observed will be following the needs and instructions provided by the client, Joshua Spears. Since this project is required by the client and will need to be presented to Spears at the end of the semester, following his requests and satisfying the clients requirements is imperative.

The last major criterion will be working between past and present building codes. Prochnow was built before the current building code was published. Therefore, there may be standards and codes in the current published code that are not up to date. Identifying what may need to be corrected and what is out of date will be essential to this project.

There are several constraints of the structural analysis of Prochnow Auditorium that will be addressed. The first constraint is the time window to conduct a structural analysis and report. This time window spans two semesters roughly 3 months each, in which by the end of it a final proposal entailing the full structural analysis will be presented as well as a website containing information on the project, project group, and analysis summary.

1.4 Exclusions

This project excluded any other work that does not pertain to the rigging. For example, the structural framing of the auditorium will not be analyzed. The scope of the project involves only the analysis of the rigging. When load combinations are being applied, snow loads and wind loads will not be considered because these loads are for the use of the roof analysis. The scope also does not include redesigning the rigging. The project will also exclude points where rigging is supported on the building, and delineation between the rigging and the rest of the structure.

1.5 Stakeholders

While the point of contact for the team is Joshua Spear who is a facilities project manager, the main client is Thomas Charles Eberly who is the Vice President of Campus Operations. He has an interest in this project because he is the one who will be funding the project. He wants documentation of the bearing capacity of the riggings above the stage for future users of the Prochnow Auditorium. These users include but are not limited to SUN Entertainment, performers BBNO$, Derek Hughes, and Momentum Aerial along with the Prochnow Auditorium Staff members. They will all have an interest since they would use the rigging and its structural integrity would be important during performances.

1.6 Timeline

This project is estimated to be completed after the thirty-two weeks given as a timeline by the client. The design of the project will be handled in the coming weeks and completed in eleven weeks on the 13th of December. Along with the design will be the completion of the website, the proposal and a presentation will be delivered to the client. The implementation will take place after the thirty-two weeks period upon completion of the Spring semester.

2.0 Scope of Services - Major Technical Tasks

Task 1: Preparation for site visit

Task: 1.2 Analyze Existing Plans and Specifications

The team will review the plans Joshua Spear provided and focus on the rigging plans of the Auditorium. Prior to the site visit, the team will be knowledgeable on the girder, beam, trusses, and connection types that are included in the rigging . The plans of the rigging may not have all the structurally significant components, but with initial identification of what should be there, when the team surveys the rigging in person they can see any post-construction changes, additions, and other changes to the structure.

Task: 1.3 Code Review

The team will do a code review which will involve researching the code used when the rigging was being designed. The goal of this task is to determine and acquire the code required when the rigging was constructed. The current code requirements to modify existing structures will also be reviewed.

Task: 1.4 Plan for Site Visit

The team will create a plan sheet of the rigging to easily identify all members on the rigging when the team is on-site. A list of action items will also be created to assure the team is documenting all the necessary information.

Group members will discuss how equipment will be operated to ensure safety during the site visit. This task will be accomplished by creating a safety plan to avoid injuries. The team will also coordinate to acquire PPE and obtain any needed approvals.

Team will coordinate with Joshua Spear to ensure access on the proposed site visit days. The auditorium schedule will also be considered when setting the site visit dates.

Coordinate with Joshua Spear and Facilities to rent equipment needed including scissor lifts, tape measures, hardhats, eye protection and gloves.

Task 2: Site Visit

Task: 2.1 Take Photographs

Teams will take photographs of structurally significant points for the team to reference when the team is not on site. The significant points will include areas where the structure shows deterioration, if any, or existing deformations. Photographs will be numbered and labeled

according to drawings to confirm the actual location of elements such as connection to the drawings.

Task: 2.2 Measurement Procedure

Group members will measure lengths of beams, lengths of flanges, widths of beams, height of rigging, and lengths between connections. Assumptions will be made such as if similar beams are used the team will assume lengths of beams will be similar. Group members will record these measurements taken in a document that will be later referenced to. This document will be cross referenced with plans to ensure accuracy.

Task: 2.3 Identify Existing Loads on Rigging

The team will identify loads on the rigging which may include curtains, lights, speakers, decorations, projector, ect. These loads will be classified in a later task.

Task 3: Structural Analysis

Task: 3.1 Classify and Document Potential Dead & Live Loads

Group members will identify live loads and dead loads on the rigging. A list of both load types will be created and documented. The potential location Joshua Spear provided during the site walk will be documented and considered during this task.

Task: 3.2 Create a 3D Model & Analyze

This Task will involve creating a 3D model of the rigging structure. The 3D modeling software the team has selected to use is SAP2000. The subsections below will go into more detail of how the modeling software will be used. The structural data will be gathered from the site investigation. Important data includes: beam dimensions, beam material, member locations, and applied loads. The gathered data will be input into SAP2000, where the analysis will be performed. This task will be accomplished by analyzing shear, moment and deflections. The demands will be determined by the existing loadings. The capacities will be identified using the steel manual and steel material. The team will ensure the demand is below the capacity.

Task: 3.3 As-Built Drawings and Load Map

Group members will create as-built drawings by using AutoCAD and the acquired field data collected in task 2.0. The loading map will also be created and this will be an elevation view indicating the path of the loads.

Task: 3.4 Assess Results of Analysis

Deflection values will be noted for the report along with any failure SAP2000 recognizes. The team will assess the results based on hand calculations and observations of structural deflections. The team will also ensure the results are applicable and logical.

Task: 3.5 Identify Optimal Load Placements

Based on the model and result assessments, the team will narrow down the potential locations of proposed loads to identify potential loading locations. The optimal load placement will be selected based on the client's preferences and needs.

Task 4: Project Impacts

The team will assess the project impacts of additional loads onto an existing rigging system. The categories of the impacts that will be evaluated are social, economic, and environmental.

Task 5: Project Deliverables

Task: 5.1 30% Deliverables

For the 30% deliverable, Task 1.0 Plan Review will be completed. Task 2.0 Site Visit will begin and Task 2.1 Take Photographs and Task 2.2 Measurements Procedures will be completed. The team will create a report and presentation reflecting all the work that has been completed this far.

Task: 5.2 60% Deliverables

For the 60% deliverable, Task 2.3 Identify Existing Loads on Rigging will be completed, concluding Task 2.0 Site Visit. Task 3.0 Structural Analysis and Task 4.0 Project Impacts will be underway by this point. The team will create a report and presentation reflecting all the work that has been completed this far.

Task: 5.3 90% Deliverables

For the 90% deliverable, Task 3.0 Structural Analysis and Task 4.0 Project Impacts will be completed. The team will create a report and presentation reflecting the work completed this far and implicated precious comments on presentation.

Task: 5.4 Final Deliverables

This deliverable includes the final report, final presentation, and finished website. All feedback from the previous deliverables should be addressed by the final submission. All tasks from 1.0 to 5.0 will be completed.

Task 6: Project Management

Task: 6.1 Meetings

The team will meet with the Technical Advisor, Dr. Dymond for technical support needed for the structural analysis aspect of the project. The team will organize team meetings to ensure deliverable deadlines are being met and other tasks are being properly completed. The team will meet with the client, Joshua Spear when there is uncertainty and to provide updates.

Task: 6.2 Schedule

A schedule will be created in order to maintain deadlines throughout the semester. The schedule will be visualized using a Gantt chart.

Task: 6.3 Resource Management

The team will keep track of the number of hours being spent on the project. This will be accomplished by logging hours into time cards in a shared excel file.

Exclusions:

1. Structural Analysis of Auditorium

The team will not evaluate the structural integrity of the entire auditorium. This includes the roof, columns and beams that do not pertain to the rigging.

2. Altering the Existing Rigging

The team will not redesign the rigging to withstand loads of future users. The structure will be evaluated, and the team will only provide a report stating all the results.

3. Installation of Equipment onto the Rigging

The team will not be responsible for installing the future user's equipment. This equipment may be speakers, light systems, curtains, etc.

3.0 Project Schedule

3.1 Gantt Chart

See Appendix Figure A.1 for full Gantt Chart.

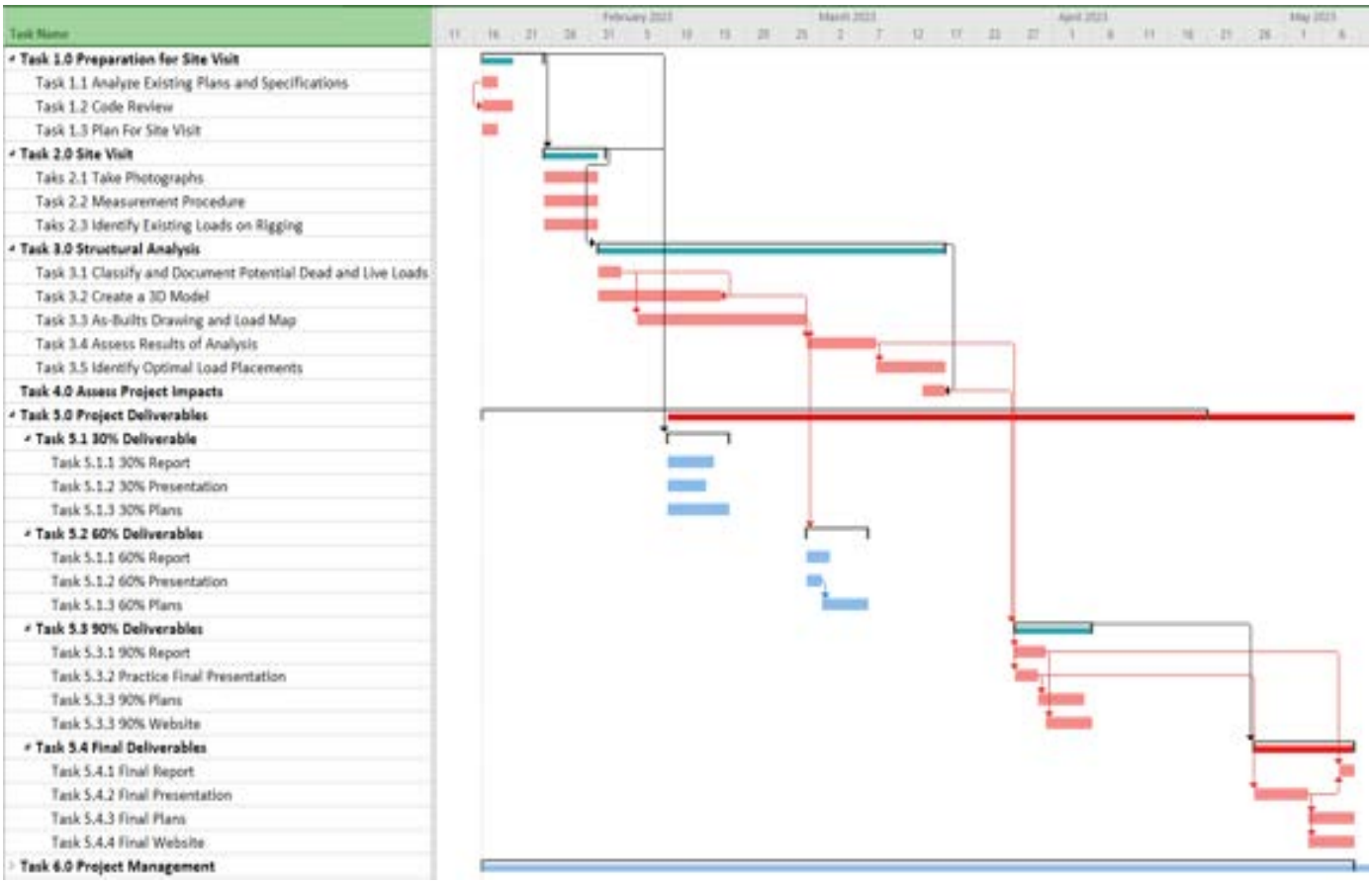


Figure 3.1: Summarized Gantt Chart

3.2 Discussion

3.2.1 Total Duration

The time frame scheduled for this project is January 17th 2023 to May 9th 2023. The longest duration in the schedule is the project deliverables and project management. As for technical tasks, the longest duration is Task 3.0 Structural Analysis as this will take a total of 36 days.

3.2.2 Major Tasks

The major tasks for this project are, the plan review, the site visit, the structural analysis, project impacts, project deliverables, and project management. The plan review involves the tasks that are required before any on-site analysis can be conducted. This includes meetings with technical advisors as well as preparing for the site visit. The actual site visit is identifying and mapping out the structurally significant sections of the rigging. This is the mapping of the rigging through photographs, labels of beams and trusses, as well as measurements of the rigging. The next major task is the structural analysis of the rigging. This is the modeling of the rigging as well as classifying loads and identifying optimal loading placements. Once these tasks are complete project impacts and project management will be assessed and completed.

3.2. Critical Path

The critical path is shown in red on the Gantt Chart. The first task on the critical path is Task 1.3.1 which involves gaining access to the site through NAU. This is the first item on the critical path since we need to do this before we can access Prochnow itself. The next item on the critical path will be Task 1.3.2 which encompasses gaining access to necessary equipment needed for the site visit. This is on the critical path because this is equipment needed before the site visit. The next task on the critical path is Task 2.0 which is the site visit where all subtasks will need to be completed. This is on the critical path because all sub tasks will need to be done and considered before any structural analysis can occur. The subtasks under Task 2.0 can be completed in any order. The next task on the critical path is Task 3.1 which is the creation of the 3D model used for the information gathered on the site visit. This is next on the critical path because it is needed before dead and live loads can be documented. The next task on the critical path is Task 3.2 which is the identification and documentation.

4.0 Staffing Plan

The Prochnow Auditorium's Rigging will be analyzed by a four-person team of O.A.T Structural Engineering. This team will clock hours under five different roles with varying levels of qualifications and responsibilities.

4.1 List of Staff Roles and Qualifications

1. Senior Engineer (SRE)

The senior engineer will be responsible for the management of this project, providing technical oversight, and checking the engineering's work. They will evaluate the conclusions from the engineer as peer review of their results and technical papers and sign off on them. A senior engineer will be required to have at least five years of engineering work experience as well as a Professional Engineering certification.

2. Engineer (EGR)

The engineer will be responsible for structural analysis of the rigging on site and compiling the results into technical papers. This will include identifying potential dead and live loading points, optimal load placements, and assessing the results of analysis. They will evaluate the results produced by the modeling and testing and implement guidance of the technical advisor and facility advisor advising. An engineer will be required to be a certified Professional Engineer.

3. Drafter (DFT)

The drafter will be responsible for the modeling of the rigging. This will include creating the 3D model from measurements and photographs provided as well as creating 2D as-built drawings and the load map. A drafter will be required to have at least a year of experience working with SAP2000.

4. Surveyor (SUR)

The surveyor is responsible for gathering equipment, taking measurements, and taking photographs of the rigging. Any rental equipment will be covered in this project's expenses. They will be required to have 2 years of experience in building surveying.

5. Intern (INT)

The intern is responsible for assisting, shadowing, and receiving training from the drafter, engineer, and senior engineer. In addition, the intern will do any miscellaneous work that needs to be done. An intern is required to be a 2nd year or above engineering or construction student at an ABET Accredited University or have two years of experience in engineering or construction.

4.2 Personal Hours

The following table allocates estimated hours to each task as required by each staffing role. These are estimations of time used to help approximate staffing costs for budgeting purposes.

Table 4.1: Staffing Hours

Tasks:	DFT Hours	INT Hours	SRE Hours	ENG Hours	SUR Hours
Task 1.0 Plan Review	0	20	5	40	30
Task 1.1 Analyze Existing Rigging Plans and Specifications	0	10	0	10	20
Task 1.2 Code Review	0	5	0	20	0
Task 1.3 Plan For Site Visit	0	5	5	10	10
Task 2.0 Site Visit	0	15	0	35	65
Task 2.1 Take Photographs	0	5	0	5	5
Task 2.2 Measurement Procedure	0	5	0	10	30
Task 2.3 Identify Existing Loads on Rigging	0	5	0	20	30
Task 3.0 Structural Analysis	120	25	40	170	0
Task 3.1 Classify and Document Potential Dead & Live Loads	20	5	5	35	0
Task 3.2 Create a 3D Model & Analyze	60	5	5	10	0
Task 3.3 As-built Built Drawings and Load Map	40	5	10	15	0
Task 3.4 Assess Results of Analysis	0	5	10	45	0
Task 3.5 Identify Optimal Load Placements	0	5	10	65	0
Task 6.0 Project Management	5	5	50	25	0
Task 6.1 Meetings	5	5	25	25	0
Task 6.2 Schedule	0	0	10	0	0
Task 6.3 Resource Management	0	0	15	0	0
All Planned Personnel Roles	**DFT Hours**	**INT Hours**	**SRE Hours**	**ENG Hours**	**SUR Hours**
Total Hours Per Role	125	65	95	270	95
Total (Person-Hours)	**650**				

5.0 Cost of Engineering Services

The total cost of rigging analysis of the Prochnow Auditorium is estimated to be $70,564 upon completion of the project as summarized in Table 5.1. The total personnel hours allocated to this project makes up the majority of total cost as the majority of the supplies and equipment are only used during the 8-day site visit. The billing rates consider the overhead costs, profits, and the employee benefits.

Table 5.1: Cost of Engineering Services

1.0 Personnel	Classification	Hours	Billing Rate $/hr	Cost
	SRE	95	$273	$25,895
	ENG	270	$120	$32,314
	DFT	125	$52	$6,497
	INT	65	$28	$1,802
	SUR	95	$33	$3,135
	Personnel Total			$69,642
2.0 Supplies	**Classification**	**Quantity**	**Cost per Quantity**	**Cost**
	Hard Hats	4	$11 Each	$44
	Gloves	4	$12 Each	$48
	Safety Glasses	4	$10 Each	$40
	Software Use	1	$100	$100
	Measuring Tape	2	$25 Each	$50
3.0 Equipment	**Classification**	**Days**	**Billing Rate $/Day**	
	Scissor Lift (Rental)	8	$80	$640
4.0 Total				$70,564

6.0 References

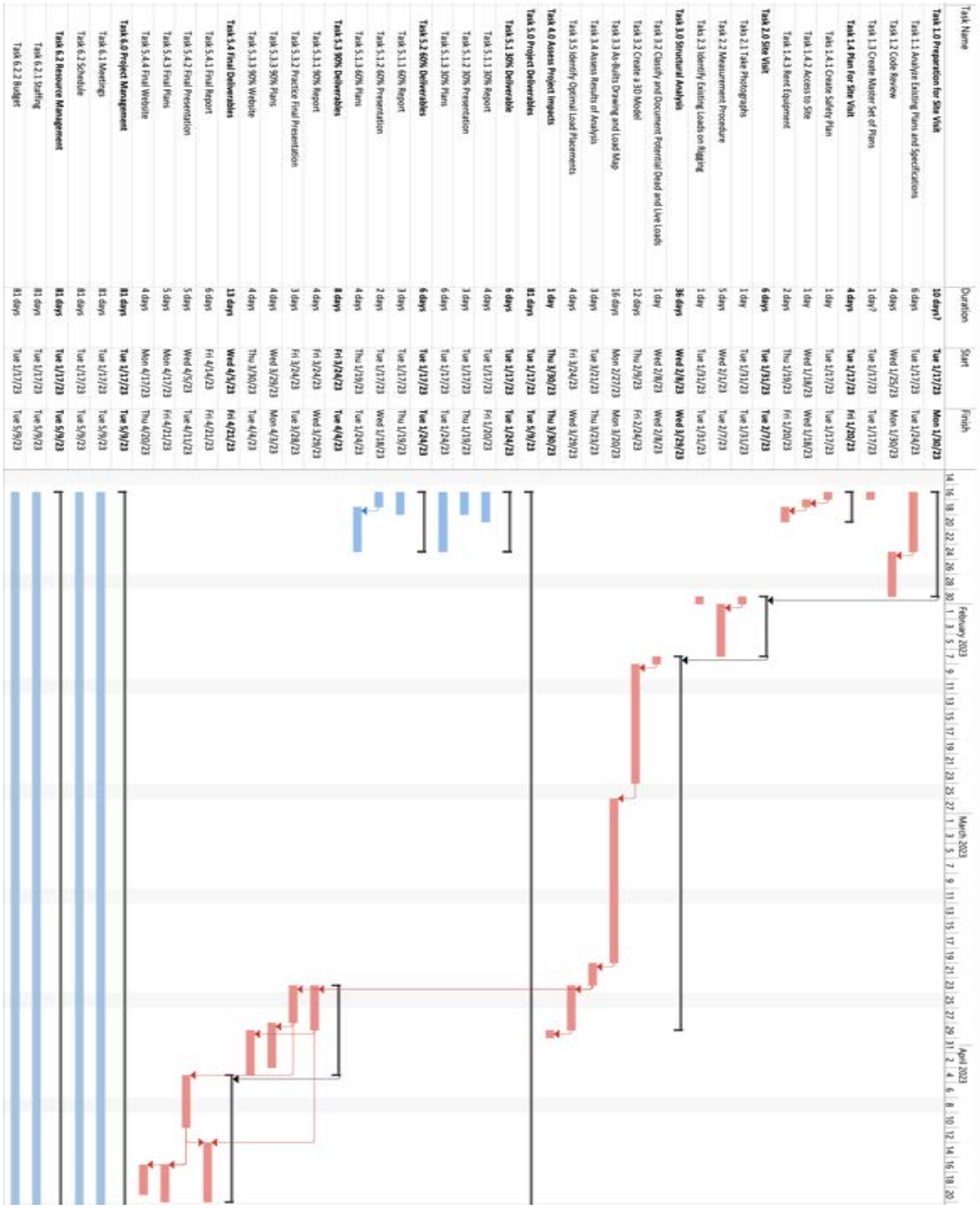
[1] G. Maps, "Google Maps," 2022. [Online]. Available: https://www.google.com/maps/place/307+W+Dupont+Ave,+Flagstaff,+AZ+86001/@35.1929214,-111.6541087,18z/data=!4m5!3m4!1s0x872d8f5d3ec3c40f:0xd42860ae08739ab5!8m2!3d35.1936594!4d-111.6555456.

[2] J. Espinoza, *View of Stage.* [Photo]. 2022.

[3] J. Espinoza, *View of Existing Rigging from Below.* [Photo]. 2022.

7.0 Appendices

Figure A.1



Task Name	Duration	Start	Finish
Task 1.0 Preparation for Site Visit	**10 days?**	**Tue 1/17/23**	**Mon 1/30/23**
Task 1.1 Analyze Existing Plans and Specifications	6 days	Tue 1/17/23	Tue 1/24/23
Task 1.2 Code Review	4 days	Wed 1/25/23	Mon 1/30/23
Task 1.3 Create Master Set of Plans	1 day?	Tue 1/17/23	Tue 1/17/23
Task 1.4 Plan for Site Visit	**4 days**	**Tue 1/17/23**	**Fri 1/20/23**
Task 1.4.1 Create Safety Plan	1 day	Tue 1/17/23	Tue 1/17/23
Task 1.4.2 Access to Site	1 day	Wed 1/18/23	Wed 1/18/23
Task 1.4.3 Rent Equipment	2 days	Thu 1/19/23	Fri 1/20/23
Task 2.0 Site Visit	**6 days**	**Tue 1/31/23**	**Tue 2/7/23**
Task 2.1 Take Photographs	1 day	Tue 1/31/23	Tue 1/31/23
Task 2.2 Measurement Procedure	5 days	Wed 2/1/23	Tue 2/7/23
Task 2.3 Identify Existing Loads on Rigging	1 day	Tue 1/31/23	Tue 1/31/23
Task 3.0 Structural Analysis	**36 days**	**Wed 2/8/23**	**Wed 3/29/23**
Task 3.2 Classify and Document Potential Dead and Live Loads	1 day	Wed 2/8/23	Wed 2/8/23
Task 3.2 Create a 3D Model	12 days	Thu 2/9/23	Fri 2/24/23
Task 3.3 As-Builts Drawing and Load Map	16 days	Mon 2/27/23	Mon 3/20/23
Task 3.4 Assess Results of Analysis	3 days	Tue 3/21/23	Thu 3/23/23
Task 3.5 Identify Optimal Load Placements	4 days	Fri 3/24/23	Wed 3/29/23
Task 4.0 Assess Project Impacts	**1 day**	**Thu 3/30/23**	**Thu 3/30/23**
Task 5.0 Project Deliverables	**81 days**	**Tue 1/17/23**	**Tue 5/9/23**
Task 5.1 30% Deliverable	**6 days**	**Tue 1/17/23**	**Tue 1/24/23**
Task 5.1.1 30% Report	4 days	Tue 1/17/23	Fri 1/20/23
Task 5.1.2 30% Presentation	3 days	Tue 1/17/23	Thu 1/19/23
Task 5.1.3 30% Plans	6 days	Tue 1/17/23	Tue 1/24/23
Task 5.2 60% Deliverables	**6 days**	**Tue 1/17/23**	**Tue 1/24/23**
Task 5.1.1 60% Report	3 days	Tue 1/17/23	Thu 1/19/23
Task 5.1.2 60% Presentation	2 days	Tue 1/17/23	Wed 1/18/23
Task 5.1.3 60% Plans	4 days	Thu 1/19/23	Tue 1/24/23
Task 5.3 90% Deliverables	**8 days**	**Fri 3/24/23**	**Tue 4/4/23**
Task 5.3.1 90% Report	4 days	Fri 3/24/23	Wed 3/29/23
Task 5.3.2 Practice Final Presentation	3 days	Fri 3/24/23	Tue 3/28/23
Task 5.3.3 90% Plans	4 days	Wed 3/29/23	Mon 4/3/23
Task 5.3.3 90% Website	4 days	Thu 3/30/23	Tue 4/4/23
Task 5.4 Final Deliverables	**13 days**	**Wed 4/5/23**	**Fri 4/21/23**
Task 5.4.1 Final Report	6 days	Fri 4/14/23	Fri 4/21/23
Task 5.4.2 Final Presentation	5 days	Wed 4/5/23	Tue 4/11/23
Task 5.4.3 Final Plans	5 days	Mon 4/17/23	Fri 4/21/23
Task 5.4.4 Final Website	4 days	Mon 4/17/23	Thu 4/20/23
Task 6.0 Project Management	**81 days**	**Tue 1/17/23**	**Tue 5/9/23**
Task 6.1 Meetings	81 days	Tue 1/17/23	Tue 5/9/23
Task 6.2 Schedule	81 days	Tue 1/17/23	Tue 5/9/23
Task 6.2 Resource Management	**81 days**	**Tue 1/17/23**	**Tue 5/9/23**
Task 6.2.1 Staffing	81 days	Tue 1/17/23	Tue 5/9/23
Task 6.2.2 Budget	81 days	Tue 1/17/23	Tue 5/9/23