

NAU CENE 476

Fall 2017

Project Staffing for San Simon Basin Dam Evaluation

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**NORTHERN
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Abbreviations:	
<ul style="list-style-type: none">● Principals - Principal Engineers● PE - Practicing Engineer● EIT - Engineer In Training● Tech - Technician● Admin - Administrator● NAU - Northern Arizona University● HEC-RAS - Hydrologic Engineering Center's River Analysis System● OTS - On Screen Takeoff	

4.0 Project Staffing

The San Simon DBA project began in the Fall 2017 semester and will continue into the end of the school year in the Spring of 2018. The staffing for this project will be vital for its completion. This staffing is based off of the overall expected needs of the project and the expected work required.

4.1 Staff Titles and Positions with Abbreviations

- Principal Engineers (Principals)
- Managers
- Practicing Engineer (PE)
- Engineer In Training(EIT)
- Drafter
- Intern
- Surveyor
- Technician (Tech)
- Administrator (Admin)

4.2 List of All Qualifications of All Senior Personnel

This project is being assessed by four senior level engineering students from NAU including two civil engineering students and two environmental engineering students. All of the engineers involved have experience with water related engineering projects and are capable of understanding the full scope of work to be completed. The engineers are going to fill every staff position needed by taking turns over the course of the project's life.

4.2.1 Bowei Zeng

Senior Engineering Student at NAU with an emphasis in Environmental Engineering. Experience in AutoCAD, Civil 3D, Excel, Gantt charts and total stations. Work experience includes Hainan Hongsheng Survey and Design Co., Ltd. as an assistant hydraulic engineer and Hainan Hengwei Supervision Co, Ltd. as an internship supervisor. Previous project experience consists of the flood discharge project at Bo'ao Airport in Qionghai City and the reinforcement of Namu Reservoir in Haikou City.

4.2.2 Jinyang Lu

Senior Environmental Engineering student at NAU, with one semester of urban planning major experience as the exchange student, Chinese Bachelor Degree of Environmental Science. Skilled in basic engineering, surviving, AutoCAD, Civil 3D,

HEC-RAS, Bentley FlowMaster, Bentley WaterGems, and basic environmental science knowledge. Internship in Henan provincial environmental protection department, responsible for monitoring air quality and the primary analysis.

4.2.3 Brendan Garrison

Senior engineering student at NAU with an emphasis in hydraulic engineering and project engineering. Experienced in HEC-RAS, AutoCAD, and HEC-HMS and some experience in Bentley FlowMaster, Bentley WaterGems, and NRCS Analyzer. Previous work experience includes Govis Structural Engineering in Newport Beach, California as a structural engineering intern as well as experience as a project engineering intern at Walsh Construction in Corona, California. Previous project experience includes a several hundred million dollar highway engineering project in Corona California.

4.2.4 Mike Gallio

Senior Engineering Student at NAU with an emphasis in water transportation. Experience in HEC-RAS, AutoCAD Civil 3D, CulvertMaster, FlowMaster, Excel, and OST. Previous experience as a field surveyor at Hunsaker and Associates. Previous projects include analysis of Flint MI. water crisis, and site analysis and planning of proposed hotel water systems.

4.3 Task and Subtask vs. Staffing Hours

Table 1: Task and Subtask vs. Staffing Hours

Task	Staff (hrs.)									Task Total
	Principle	Manager	PE	EIT	Drafter	Intern	Survey	Tech	Admin	
Research DBA	2	0	0	2	0	6	0	0	0	10
Research Arizona Dam Regulations	2	0	0	2	0	12	0	0	0	16
Rainfall Data	1	0	1	3	0	6	0	0	0	11
Section Topography of area	3	0	2	3	0	6	24	0	0	38
Channel Shape Analysis	2	0	2	3	0	6	12	0	0	25

Topo Map of Stafford and Dam Area	3	0	2	1	0	3	24	0	0	33
Geometric Models of Channel	25	0	12	6	0	0	12	6	0	61
Set Up Model of Main Channel	25	0	12	2	0	0	0	12	0	51
Set up Model of Floodplain	25	0	12	2	0	0	0	12	0	51
Run Hec Ras Analysis	10	0	6	1	0	0	0	10	0	27
Define Flood Concern Area	3	0	2	1	0	2	6	0	0	14
Meetings to confirm Plan of Progression	1	1	1	1	1	1	1	1	1	9
List of Possible Considerations	3	0	2	2	0	2	0	0	0	9
Average Costs Associated With properties	2	0	2	2	0	6	0	0	0	12
Map of AO including districts and types of structures	3	0	3	6	6	2	12	0	0	32
Final Report and Submittal	3	2	3	1	12	2	1	1	0	25
Site Visit	24	24	24	24	0	6	48	10	0	160
Staff Total	137	27	86	62	19	60	140	52	1	584

5.0 Project Services Costs

The San Simon DBA project cost will be estimated using the industry rates for given positions. This will be provided in a table below as well as a composite of total costs. The total cost, can be found below in section 5.2. The cost include the services cost and hardware cost. This project is only required to provide the dam breach analysis, and supporting data collection.

5.1 Estimated Staffing Costs Break Down

Table #2: Cost Breakdown [1-8]

	Cost Per Hour	Estimated #of Hours	Estimated Cost For Project
Principle	\$92.75	137	\$12,706.75
Manager	\$95.50	27	\$2,578.50
PE	\$69.75	86	\$5,998.50
EIT	\$50.50	62	\$3,131.00
Drafter	\$37.75	19	\$717.25
Intern	\$22.50	60	\$1,350.00
Survey	\$41.25	140	\$5,775.00
Tech	\$41.25	52	\$2,145.00
Admin	\$35.50	1	\$35.50

5.2 Estimated Total Cost of Project

The team has estimated that for the foreseen circumstances the total project engineering costs is expected to be \$34,437.50. In preparation for non engineering costs that were not calculated in this proposal as well es possible unforeseen circumstances a multiplier of 1.5 was applied to this estimate. Leaving the final proposed cost to be \$51,656.25.

6.0 References

- [1] “Salary: Senior Principal Engineer.” Glassdoor, 26 Oct. 2017, www.glassdoor.com/Salaries/senior-principal-engineer-salary-SRCH_KO0,25.htm.
- [2] Salary.com, Site built by: “Engineering Manager Salaries.” Engineering Manager Salaries by education, experience, location and more - Salary.Com, www1.salary.com/Engineering-Manager-Salary.html.
- [3] “Salary: Professional Engineer.” Glassdoor, www.glassdoor.com/Salaries/professional-engineer-salary-SRCH_KO0,21.htm.
- [4] “Salary: Engineer In Training.” Glassdoor, 12 Oct. 2017, www.glassdoor.com/Salaries/engineer-in-training-salary-SRCH_KO0,20.htm.
- [5] “What Is the Salary of a Drafting Engineer?” Chron.com, work.chron.com/salary-drafting-engineer-5959.html.
- [6] www.recruiter.com. “Surveyor Salary: Latest Wage and Compensation Trends in Your Area.” Recruiter, www.recruiter.com/salaries/surveyors-salary/.
- [7] “Salary: Engineering Technician.” Glassdoor, 26 Oct. 2017, www.glassdoor.com/Salaries/engineering-technician-salary-SRCH_KO0,22.htm. Accessed 9 Nov. 2017.
- [8] Project Administrator, Engineering Salary, www.payscale.com/research/US/Job=Project_Administrator%2C_Engineering/Salary.